

Forest Policy Inventory Report

2nd Generation Southeast Landscape Plan

MFRC Southeast Regional Landscape Committee

December 2013



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Executive Summary

The Minnesota Forest Resources Council was established in 1995 by the Minnesota Legislature to provide advice to public and private organizations on forest sustainability issues through the Sustainable Forest Resources Act (SFRA). This legislation provided authorization for establishing regional landscape committees to foster landscape-based forest resource planning and coordination. These regional committees provide an opportunity to involve private citizens, forestry professionals and members of various interest groups in developing and implementing landscape-level plans that promote forest sustainability.

The purpose of this document is to assess the most recent forest management plans created by the Minnesota Department of Natural Resources (DNR) and their partners for Minnesota's thirteen-county Southeast Landscape (Dodge, Fillmore, Freeborn, Goodhue, Houston, Le Sueur, Mower, Olmsted, Rice, Steele, Wabasha, Waseca, Winona), and to identify common themes among the issues, visions, goals, and strategies that the DNR has established for this region. These themes will help provide guidance to the creation of the second generation Southeast Landscape Plan, which will be released in 2014.

This report contains two sections: 1) a summary of the forest policies expressed across these plans, organized by Issues, Visions, and Goals; 2) individual plan summaries that contain extracted plan language organized by these three categories, as well as their specific management Strategies and background information on the scope and planning process.

Thirteen DNR plans were analyzed for this report; three different plan types were included – Regional, Land Asset Management, and High Biodiversity Management Area plans. These plans were qualitatively analyzed for common themes. Issues or challenges that were mentioned across the majority of these plans include recreation and cultural needs, biodiversity, rare species conservation and management, invasive species, development pressures, and wildlife management. Goals fell largely into four categories: land management for timber and native plant communities, and other management-related goals; protection, enhancement, and restoration of terrestrial and aquatic wildlife habitat, rare species, and biodiversity; combating and planning for disturbance; and social factors. Timber/native plant community/other forest management goals and wildlife habitat goals were the most prevalent across plans, while goals that were specific to disturbance, development, and social factors were somewhat less common despite being commonly mentioned as issues/challenges in most plans. This suggests that timber, wildlife, and native plant community management is the medium through which the DNR strives to influence these broad, key issues. However, it should also be noted that while social goals such as research, recreation, and education needs were not common in the High Biodiversity Management Area plans – which made up the majority of plans in this analysis and were highly focused – they were present in the Regional plans, which had a must broader scope.

Note to Reader: Additional regional data can be found in the reports, *Condition and Trends: 2nd Generation Southeast Landscape Plan*, and *Demographic Data Report: 2nd Generation Southeast Landscape Plan*, MFRC Southeast Planning Committee, 2014.



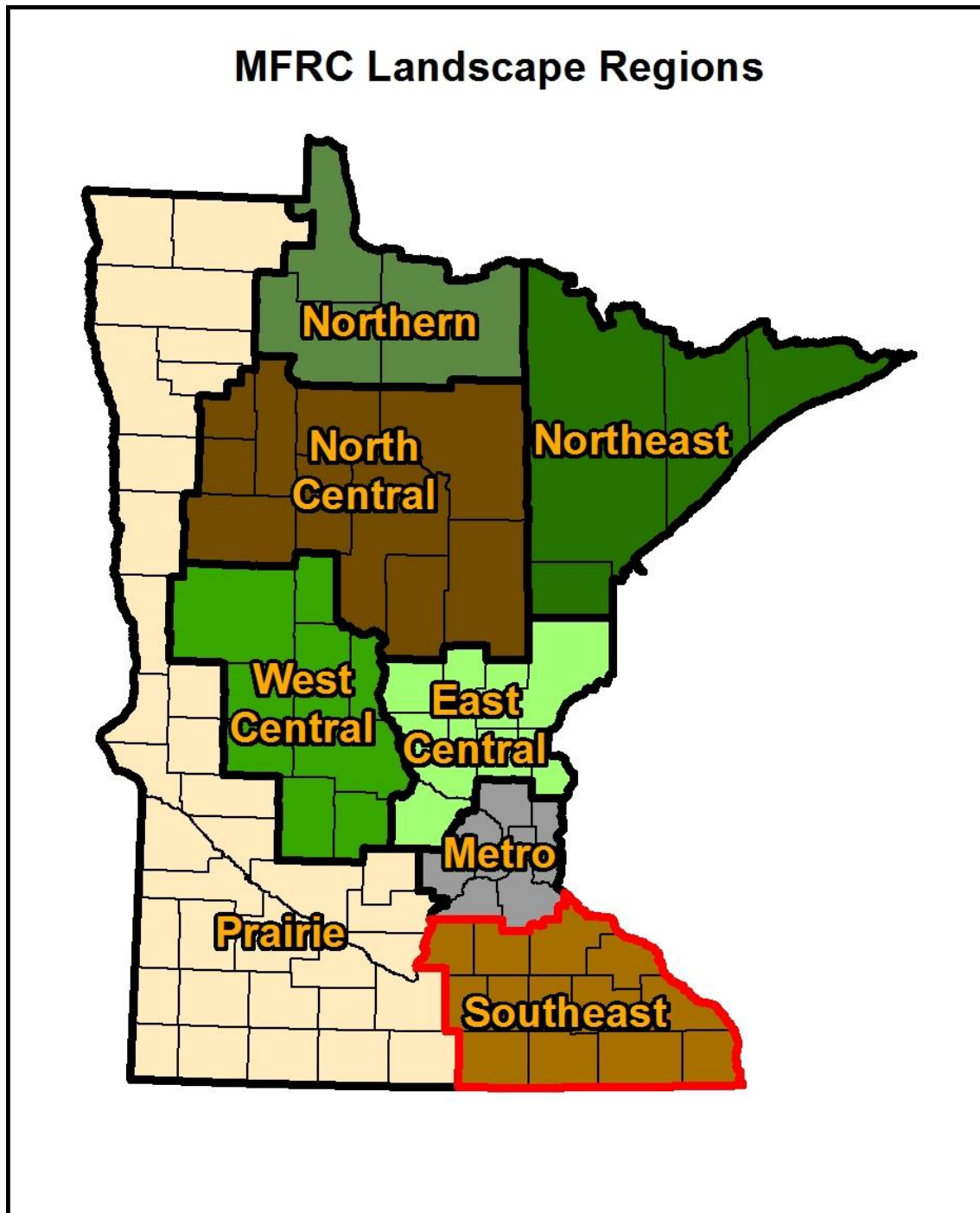
Introduction

During the creation of the first generation Southeast Landscape Plan, the *Forest Resources Management Plan for Minnesota's Southeast Landscape*, the Minnesota Forest Resources Council in partnership with the Experiment in Rural Cooperation and University of Minnesota performed an analysis of regional forest management plans to identify common issues, visions, goals and strategies that had been created for forests in Southeast Minnesota. That document, *Forest Resource Management in Southeast Minnesota: A Landscape Perspective* (Class and Skally 2002), provides the basis for this Forest Policy Inventory.

The purpose of this document is to assess the most recent forest management plans created by the Minnesota Department of Natural Resources (DNR) and their partners for Minnesota's Southeast Landscape, and to identify common themes among the issues, visions, goals, and strategies that the DNR has established for this region. These themes will help provide guidance to the creation of the second generation Southeast Landscape Plan, which will be released in 2014. A similar Forest Policy Inventory was created for the Northeast Landscape (Lynch et al. 2013) prior to the release of the second generation Northeast Landscape Plan; the goal is to create similar documents for all Minnesota Forest Resources Council Landscapes prior to revision of their Landscape Plans.

Setting

The Minnesota Forest Resources Council defines the Southeast Landscape region as the following thirteen-county area: Dodge, Fillmore, Freeborn, Goodhue, Houston, Le Sueur, Mower, Olmsted, Rice, Steele, Wabasha, Waseca, Winona.





Methods and Definitions

Data Collection

The purpose of this report is to summarize common themes across recent forest-related plans with relevancy to the Southeast Landscape region. The 2002 Landscape Perspective report collected forest resources plans for analysis via requests made to a variety of agencies and groups involved in the region. Due to limited capacity, a project of this scope was not feasible for this revision of the report. To focus the project, the Landscape Program Manager of the Minnesota Forest Resources Council selected plans created by the Minnesota Department of Natural Resources and their partners, as a proxy for relevant forestry goals in the region. Thirteen plans were analyzed, including three regional level plans, two land asset management plans, and eight plans focused on high biodiversity in specific key areas of the region.

The main objective of the 2002 Landscape Perspective report was to “highlight landscape issues, visions, goals, and strategies presented in forest resource management and planning documents for Southeastern Minnesota” (Class and Skally 2002, p. 3). The Landscape Perspective used the following definitions to guide analysis of the plans “to minimize bias in classifying the data”:

- **Issues:** An issue is a concern based on current information and peoples’ values. It relates to a problem or focus area that the forest resources report addresses. It may be a general idea, “there is not enough wildlife”, or very specific, “native tree species in this county are ten times below their historic range”. Issues assist in developing a vision.
- **Vision:** A vision is a look into the future. In landscape planning a vision refers to future conditions of an area in 100 years or greater. It often is very vague, yet helps managers and stakeholders come to agreement and begin to develop goals. To continue the examples above some visions might be to “preserve biodiversity” and “promote regeneration of forestlands.”
- **Goals:** Goals are specific benchmarks to strive towards in addressing the vision and resolving the issues. Goals often look in the near future, 10 to 20 years from now. Goals are detailed and assist in developing strategies that address the vision. Given the example above some goals may be to “limit development within environmental corridors to promote biodiversity” and “increase occurrence of natural forest communities and native species”
- **Strategies:** Strategies are methods to accomplish goals and move toward achieving a vision. They provide land managers with tools and techniques to accomplish goals. Landowners often use only strategies that apply to their land. Examples of strategies would be “use direct seeding methods on sites suitable for native plant species” and “reduce high grading of trees and if possible increase natural regeneration through appropriate silvicultural methods”. It is important to note that not all strategies apply to all land managers because of their specific nature. Strategies may require particular site characteristics, resources, or land manager objectives in order for implementation to be successful.

This revision of the report also utilized these four definitions during analysis of the 13 plans to code and extract language that related to forest resources as defined by Minnesota Statute 89.001, Subdivision 8:

- Forest Resources: “those natural assets of forest lands, including timber and other forest crops; biological diversity; recreation; fish and wildlife habitat; wilderness; rare and distinctive flora and fauna; air; water; soil; climate; and educational, aesthetic, and historic values.” (MN 89.001, 8)

Analysis

For each plan, the extracted language was organized by category – Issue, Vision, Goal, Strategy – based on the definitions stated above. It should be noted, however, that as the scope of the individual plan varied greatly, the level of detail for what the author considered goals, strategies, etc. also varied, so criteria for category breakdown was adjusted to plan type. For instance, timeframes tended to vary from the those used in the 2002 Landscape Perspectives definitions, e.g., 50-year goals and 7-year strategies in the high biodiversity plans.

The extracted language was left intact at this stage; any clarifications added by the author were inserted in [brackets], and places where text was removed for brevity are indicated by ellipses [...]. The summaries also contain extracted information on the scope, process, purpose, and organizations involved in the creation of each plan. These summaries are included in the Individual Plan Summary section of this report.

The extracted language from each category (Issue, Vision, Goal, Strategy) was then compared across all plans. To do this, Issues were thematically coded and combined as necessary. A list of common Issues was created, noting which plans included each Issue. Plans listed for each Issue should be considered the minimum number of plans that contained that Issue, as Issues were less explicit than other categories and may have more easily been missed during analysis. Summary Vision statements were then created for each plan category (Regional, Land Asset Management, High Biodiversity), combining individual vision statements where possible. Finally, Goals were coded using the themes provided by the list of summary Issues, adding new coding categories where necessary. Coded Goals were then organized by themes and summarized where possible. High biodiversity plans often contained identical language, so combination of Goal statements was straightforward in these cases. Summarized Issues, Visions, and Goals are presented in the Cross-Plan Summary below. Strategies were often specific management actions for each plan, and were not summarized; strategies are listed in the Individual Plan Summary section, with links to their respective goal.

Forest Policy Inventory Cross-Plan Analysis and Summary



This section contains the cross-plan summaries and common themes among the Issues, Visions and Goals extracted from the individual plans. The plans were sometimes more broad in the issues that they contained, mentioning subjects such as climate change and development, without explicitly mentioning these same topics in the goals and strategies. Rather, goals and strategies were somewhat more narrow, often focusing on timber management as it related to managing for native plant communities, wildlife habitat, and rare species. This could especially be seen in the High Biodiversity plans. While a wide variety of issues were mentioned in the plans, the goals and strategies focused on specific native plant communities and the management needs of each. If the goals of a community did not include timber harvest, often no specific management strategies were listed for that community for the seven-year scope of the plan. It is possible that the objective of listing so many issues and broad visions for these plans was to identify all the areas that might be affected by the choices made around timber and wildlife habitat management strategies.

Cross-plan summaries of Issues, Visions, and Goals are presented below. As Strategies were often specific management actions for each plan, they were not summarized; Strategies are listed in the Individual Plan Summary section, with links to their respective goal.

The following thirteen plans were analyzed for this report:

Regional plans

1. 2013 Blufflands/Rochester Plateau Blufflands/Rochester Plateau Subsection Forest Resource Management Plan (DRAFT)
2. Tomorrow's Habitat for the Wild and Rare: An Action Plan for Minnesota Wildlife
3. Strategic Plan for Coldwater Resources Management in Southeast Minnesota: 2004-2015

Land Asset Management Plans

4. Land Asset Management Plan for Lake City Forestry Area
5. Land Asset Management Plan for Rochester Forestry Area

High Biodiversity Management Plans

6. High Biodiversity Area Management Plan, Collischan Bottoms (Vermillion Bottoms and Lower Cannon River Area)
7. High Biodiversity Area Management Plan, Partridge Creek
8. High Biodiversity Area Management Plan, Pine-Hemingway Creek
9. High Biodiversity Area Management Plan, West Indian Creek
10. High Biodiversity Area Management Plan, Whitewater North Fork Area
11. High Biodiversity Area Management Plan, Whitewater Sand Savanna
12. High Biodiversity Area Management Plan, Whitewater South Fork
13. High Biodiversity Area Management Plan, Whitewater Upper Beaver Creek

ISSUES

The following is a list of summarized issues from individual, ordered by the number of plans that contained each issue. However, a few things should be noted: 1) plans listed for each Issue should be considered the minimum number of plans that contained that Issue, as Issues were less explicit than other categories and may have more easily been missed during analysis, and 2) plans 6 through 13 were all High Biodiversity plans, which often contained similar language and were focused on very specific areas, so while an issue that was common in these plan types may seem prevalent, it may only have been prevalent for that particular plan type.

1. Recreation and cultural needs and conflicts (including visual quality; cultural resources) [1, 3, 6, 7, 8, 9, 10, 11, 12, 13]
2. Biodiversity [1, 6, 8, 9, 10, 11, 12, 13]
3. Rare species [2, 7, 8, 9, 10, 11, 12, 13]
4. Invasive species (includes exotics and problematic natives; reed canary grass, buckthorn, honeysuckle, prickly ash, creeping charlie) [2, 6, 7, 8, 10, 11, 12, 13]
5. Development (including from agriculture and urban/rural development), land conversion, fragmentation, and population growth [1, 3, 7, 8, 10, 11, 12, 13]
6. Wildlife management (includes game and non-game) [6, 8, 9, 10, 11, 12, 13]
7. Old growth forest [1, 7, 8, 9, 10, 12]
8. Climate change and global change [1, 3, 10, 11, 12, 13]
9. Timber production, management, value, and harvesting [1, 6, 7, 8, 9]
10. Habitat degradation, loss, and protection (including terrestrial and aquatic) [1, 2, 3, 8, 9]
11. Disturbance impacts (including those from flood, blowdown, logging) [1, 6, 8, 10]
12. Public lands and resources (management, access buying/selling/exchange, policy, etc.) [1, 3, 4, 5]
13. Rare features [1, 8, 9]
14. Native Plant Communities [1, 8, 9]
15. Water and soil quality (including erosion and water pollution) [3, 10]
16. Public education and appreciation/tolerance [2, 3]
17. Understory species management [8, 9]
18. Other issues [mentioned by only 1 plan each] (pollution; disease; food source limits; promote use of sounds ecosystem management principles; information needs; desired forest structure/age) [1, 2, 3]

VISIONS

The following are summary vision statements from the 3 plan types: Regional, Land Asset Management, and High Biodiversity.

Regional plans [1, 2, 3]:

Tomorrow's Habitat:

- Improve knowledge about species of greatest conservation need, stabilize and increase their populations, and enhance the public's appreciation and enjoyment of these species. [2]

Cold Water:

- Provide diverse angling opportunities, increase communication efforts with constituents and fisheries professionals, and provide for the protection, improvement, and restoration of coldwater aquatic habitat and fish communities so that this unique resource is available for future generations. [3]

SFRMP:

- Increase timber productivity on state lands and determine a sustainable level of harvest; ensure a sustainable supply of “non-timber forest products”; adapt management to mimic natural disturbances and better reflect natural landscape patterns. [1]
- Address the impacts of disturbance factors such as insects, disease, herbivory, invasive species, climate change. [1]
- Determine appropriate distribution of age groups, growth-stage, structure, composition, tree diversity necessary to support biodiversity and forest health/productivity goals in light of truncated natural succession pathways. [1]
- Protect rare and important species and habitats; adapt management to enhance biodiversity and native plant communities.
- How do we manage forest vegetation to maintain forest communities of particular concern and balance the habitat needs of game and nongame species? [1]
- Manage forests at the watershed level, accounting for impact on wetlands and other aquatic resources; determine the appropriate width of the riparian management zone (RMZ)
- Effectively implement comprehensive resource management and limit habitat fragmentation in light of structural and agricultural development [1]
- Manage the limited public land base to achieve “landscape” level management and other desired results while upholding various state and federal statutes. [1]
- Protect cultural resources and visual quality during forest management [1]

Land Asset Management plans [4, 5]:

- Achieve the optimum pattern of forest land ownership for the management of forest resources designed to best serve the needs of Minnesota’s citizens while maximizing long-term resource and economic benefits through efficient resource management, land acquisition, exchange, sale, leasing, permit and other activities. [4, 5]

HB Plans [6, 7, 8, 9, 10, 11, 12, 13]:

- Perpetuate, manage, regenerate, and enhance the native plant communities that support local biodiversity using processes that mimic the disturbances that helped to establish and maintain these communities. [6, 8, 9, 10, 11, 12, 13]
- Management of these sites should focus on the site as a whole, employ practices that perpetuate endangered, threatened, special concern, or otherwise rare species, and native plant communities while following the mandates of forestry or wildlife administered lands. [7, 8, 10, 11, 12, 13]
- Meld the goals of biodiversity protection/enhancement [6, 8, 9, 10, 11, 12, 13], recreation [6, 8, 9, 10, 11, 12, 13] game and/or non-game wildlife management [6, 8, 9, 10, 11, 12, 13], timber management [6, 8, 9], understory species management [8, 9], trout stream management [8, 9] into an adaptive management process.

GOALS

Goals fell largely into four categories: Land management for timber and native plant communities, and other management-related goals; Protection, enhancement, and restoration of terrestrial and aquatic wildlife habitat, rare species, and biodiversity; Combating and planning for disturbance; and Social factors. Each category contained several themes, which are summarized below. Goals were organized by these themes and summarized where possible. These summarized goals are listed below, by theme, in the order of the number of plans that expressed each summarized goal. Themes represent the author's interpretations of the summarized individual reports, based on the summarized list of Issues.

Summary:

- I. Land management for timber and native plant communities, and other management-related goals [1, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13]
 - A. Timber management and harvest [1, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13]
 - B. Native plant communities [1, 6, 7, 8, 9, 10, 11, 12, 13]
 - C. General forest management goals [1, 6, 7, 8, 9, 10, 11, 12, 13]
 - D. Forest age and structure (including goals for old growth) [1, 6, 7, 8, 10]
 - E. Management of public lands [1, 4, 5, 7, 8]
- II. Protection, enhancement, and restoration of terrestrial and aquatic wildlife habitat, rare species, and biodiversity. [1, 2, 3, 6, 7, 8, 9, 10, 11, 12, 13]
 - F. Wildlife habitat (terrestrial) [1, 2, 6, 7, 8, 9, 10, 11, 12, 13]
 - G. Rare and special concern species [1, 2, 8, 10, 11, 12]
 - H. Riparian/aquatic habitat [1, 3, 7, 8, 9]
 - I. Biodiversity [1, 9, 13]
- III. Combating and planning for disturbance [1, 7, 8, 10, 11, 12, 13]
 - J. Combating non-native invasive and aggressive native species [1, 7, 8, 10, 11, 12, 13]
 - K. Climate change [1]
 - L. Impact of disturbance [1]
- IV. Social factors [1, 2, 3, 4, 5, 7, 8]
 - M. Research and communication needs [1, 2, 3, 7, 8]
 - N. Recreation and cultural needs [1, 2, 3, 7, 8]
 - O. Development and land use [1, 4, 5]
 - P. Public education needs [2, 3]

Thematic groupings and summarized goals:

- I. Land management for timber and native plant communities, and other management-related goals [1, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13]**
 - A. Timber management and harvest [1, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13]*

- Encourage regeneration and perpetuation of oak communities (dry oak, mixed oak, oak woodland-brushland/savannah) through controlled burning and carefully planned logging to open up the community. [7, 8, 9, 10, 11, 12, 13]
- Management will be performed using existing road and trail systems and the construction of new roads will be kept to a minimum. [10, 11, 12, 13]
- Any logging used in the management of these areas will be designed to mimic natural disturbance process and will be performed in a way that minimizes soil compaction and damage to the understory species [10, 11, 12, 13]; winter logging in oak forest and white pine-hardwood will be done to minimize ground disturbance [9].
- Acquire (for the state) productive private forest lands for resource protection and timber production state forest land. [4, 5]
- Management techniques in oak forest will be designed to mimic natural disturbances such as blow downs, disease, and fire [10, 13].
- Management in the oak forest areas will be designed to minimize canopy loss and techniques to incorporate shelterwood or group selection will be examined for their effectiveness. [10, 12, 13]
- Management and harvest in the maple-basswood community should maintain full canopy cover and limit gap creation [10, 12]
- GDS-6B Timber productivity and quality on state timber lands is increased. [1]
- [HAB] [Determine] the size of disturbance or harvest that is required to maintain habitat for interior bird species [6]
- Some of the stands identified by the CSA database will be placed in a reserved and ERF status during the current and upcoming stand review process of the Blufflands/Rochester Plateau SFRMP. [10, 13]
- In general, much of the harvest related management activities will take place in the northern portion of this site. [...] The southern portion of the site provides habitat for most of the rare species found in this area and many of the more sensitive native plant communities and will be managed accordingly. [12]

B. Native plant communities [1, 6, 7, 8, 9, 10, 11, 12, 13]

- Management practices, where possible, should be used to retain forests with oak components (oak, mesic oak, central hardwood, white pine-hardwood) as oak types. [6, 7, 8, 9, 11, 12]
- In oak forests where maple-basswood/northern hardwood is prevalent and succession is inevitable, the oak component will be retained as long as possible [6] or the stands will be allowed to succeed to maple basswood [7, 9, 10, 11, 12, 13].
- Management should ensure the perpetuation of the white pine-hardwood forest and protect/increase the white pine component through natural regeneration or the encouragement of regeneration through active management. [7,9, 10, 11, 12, 13]
- Floodplain forest/lowland hardwood forests that are not threatened by reed canary grass and are regenerating the overstory species such as cottonwood and silver maple will be maintained with minimal management or managed to encourage the regeneration of overstory hardwood species and restore the lowland hardwood forest community. [10, 11, 12, 13]

- Maple-basswood areas will be managed to maintain the maple-basswood forest community and the full canopy cover that is typical of this native plant community [10, 12, 13]
- Maintain unique Algific Talus Slope communities in an undisturbed condition and provide habitat for the rare plants and animals that occur in them. [8, 9]
- Some stands on State lands will be managed to reflect the composition, structure, function, and growth stage of native plant communities. [1]
- GDS-3E Rare Native Plant Communities are protected, maintained, or enhanced in the subsections. [1]
- Mesic oak forest should be actively managed to ensure its perpetuation as well as the rare species that occur in them. [8]
- Management should ensure the perpetuation of these natural [northern hardwood] communities and associated rare species. [8]
- Maintain the mixed hardwood seepage spring as a sensitive natural area. [9]
- To protect moist and dry cliffs, no management activities will occur on them. [9]
- Dry cliffs will be maintained as open cliff communities. [13]
- Barrens oak savannas will be managed to encourage regeneration of the savanna community [11]
- Maintain the northern hardwood-conifer forest plant community. [12]
- These areas will be managed to maintain the black ash swamp community and the canopy cover and emergent vegetation that is typical of this native plant community. [12]
- Management in mixed hardwood swamp will be designed to maintain the community type. [13]

C. General forest management goals [1, 6, 7, 8, 9, 10, 11, 12, 13]

- Maintain the maple basswood plant communities while retaining a diverse shrub layer and maintaining or increasing rare plants in the herbaceous layer. [6, 7, 8, 9]
- Avoid management activities that would threaten cliff areas or Algific Talus slopes and include buffers between adjacent sites when management is implemented [10, 12, 13]
- Management techniques in oak forests/oak-woodland brushland will be designed to mimic natural disturbances such as blow downs, diseases native to the area, and fire. [11, 12, 13]
- GDS-2B The harvest of non-timber forest products is managed to provide a sustainable supply for humans while providing for wildlife habitat and biodiversity. [1]
- Management in oak savannah and jack pine barrens might include commercial firewood and other timber sales, girdling and herbicide application, scarification [11]
- Management options in oak forests might include prescribed fire, timber harvest, supplemental planting of oak both pre- and post- harvest, and post-sale treatment efforts. [11]
- Prescribed fire in adjacent communities of barrens oak savannas, oak forest-dry subtype, oak woodland-brushlands, or dry prairies may be allowed to carry into the mesic oak type as part of larger landscape burns to take advantage of natural firebreaks. [11]
- White Pine-Hardwood areas do not naturally experience frequent or intense disturbance patterns and should be maintained naturally without disturbance. [11]

D. Forest age and structure (including goals for old growth) [1, 6, 7, 8, 10]

- GDS-1B Species, age, and structural diversity within some stands will be maintained or increased. [1]
- GDS-2A The SFRMP treatment level for each cover type moves toward the desired age-class structure for even-aged managed cover types and improves the age-structure and timber quality of uneven-aged managed cover types. [1]
- Balanced timber age classes will be spatially distributed across the landscape to provide habitat for present and future flora and fauna. [1, 6]
- Disturbed woods stands will be managed for the tree species to which they have been planted. [8]
- GDS-3A Old forest in the subsections is distributed across the landscape to account for timber products, wildlife habitat, and ecological diversity. [1]
- Total protection of the old growth stands and that portion of the SMZ where endangered and threatened plant species occur should help to protect the species located there in the short term. [7]
- A collaborative effort by the Section of Wildlife, Division of Ecological Services, and the Division of Forestry to develop a management plan for the white-pine hardwood old growth stand should be considered. [10]

E. Management of public lands [1, 4, 5, 7, 8]

- Acquire key private lands [7, 8] that provides public access/linkage to Division of Forestry-administered forest land where currently there is none, that are landlocked inside a large contiguous block of Division of Forestry administered land, and/or that reduces state/private boundaries in other ways [4, 5]
- Scattered and low productivity parcels of State land are to be disposed of through exchange, transfer or sale. [4, 5]
- School Trust Lands will be Managed for Long-Term Economic Return to the Minnesota School Trust Fund and the Fund will be Compensated for any Management Activities That Limit the Economic Return for School Trust Lands. [1]

II. Protection, enhancement, and restoration of terrestrial and aquatic wildlife habitat, rare species, and biodiversity. [1, 3, 2, 6, 7, 8, 9, 10, 11, 12, 13]

F. Wildlife habitat (terrestrial) [1, 2, 6, 7, 8, 9, 10, 11, 12, 13]

- Management to restore floodplain/lowland forest [10, 11, 12, 13], regenerate oak [13], preserve oak habitat [11] and that done within white pine-hardwood forest [11] with be sensitive to the needs of forest interior bird species (e.g. impacts of edge effect).
- Maintain the mix of community types providing a variety of habitat for numerous rare species and species of greatest conservation need. [2, 10, 11, 12]
- Floodplain forest and lowland hardwood areas will be managed to restore a diverse community type and to provide the needed habitat for the species that depend on this area [6, 11, 12]
- Maintain and protect the sensitive habitat of various cliff and Talus slope areas. [10, 12, 13]

- Enhance wildlife habitat at multiple scales to provide for game and nongame species found in the subsections. [1, 7, 8]
- Those stands that have a high component of oak and other shade intolerant regeneration will be managed to augment the oak component for the benefit of numerous game and non-game species. [10, 13]
- Maintain or increase aspen acreage to benefit various wildlife and non-game wildlife species. [7, 9]
- Non-game Wildlife and MCBS data will be utilized to identify critical habitat in oak forests for management in small, medium, and large patches, i.e., red-shouldered hawks. [12]
- Management in rare species and community types will be performed in a manner that mimics natural disturbance processes and is sensitive to the maintenance of the native plant communities and the species found within these communities. [12]

G. Rare and special concern species [1, 2, 8, 10, 11, 12]

- Maintain the mix of community types providing a variety of key habitat for numerous endangered, threatened, special concern, and otherwise rare species. [1, 2, 8, 10, 11, 12]
- Manage federal and state listed species effectively [2]
- Manage emerging issues affecting specific Species of Greatest Conservation Need (SGCN) populations [2]
- Survey SGCN populations and habitats monitor long-term changes. [2]
- Manage areas in the jack pine barrens and oak forest with sensitivity towards and enhancement of Karner blue butterfly habitat. [11]
- The high quality mesic oak forest communities located at the upper ends of valleys are important forest interior habitat to rare species such as Acadian flycatcher (*Empidonax virescens*), cerulean warbler (*Dendroica cerulea*), and red-shouldered hawk (*Buteo lineatus*); these areas will be allowed to succeed without intensive management. [Oak forest] (p. 6) [11]

H. Riparian/aquatic habitat [1, 3, 7, 8, 9]

- Maintain a quality lowland hardwood community while protecting the groundwater seepage springs and herbaceous ground cover/shrub layer. [7, 8, 9]
- Improve our ability to protect, improve, and restore riparian and in-stream habitat so that fish and other wildlife and plant populations are healthy. [1, 3]
- The management focus in the lowland hardwood forest will be protection of ETS species locations [7], protection of springs, and adherence to riparian area and SMZ zone guidelines. [7, 8]
- GDS-5B Forest management on state lands adequately protects wetlands, seasonal ponds including oxbows, and sinkholes. [1]
- Support and use a watershed approach for trout management so that all coldwater resources are protected and improved and basin wide impacts to coldwater streams can be addressed. [3]

I. Biodiversity [1, 9, 13]

- GDS-3D Managers of State Lands in MBS Sites of Statewide High and Outstanding Biodiversity Significance and High Conservation Value Forests will implement Measures to sustain or minimize the Loss to the Biodiversity Significance. [1]
- Maintain aspen stands for biological diversity in the area and to provide wildlife habitat. [9]
- Maintain a riparian corridor connecting these two sections of high biological diversity while allowing timber harvest entry to restore and manage for a diverse lowland hardwood forest. [13]

III. Combating and planning for disturbance [1, 7, 8, 10, 11, 12, 13]

J. Combating non-native invasive and aggressive native species [1, 7, 8, 10, 11, 12, 13]

- Management action should be taken to reduce the threat of prevalent non-native invasive species in oak woodland-brushland/savanna [10, 11, 12, 13] and other oak forest types [7, 8, 13], maple-basswood [10, 12, 13], northern hardwood-conifer [12], black ash swamps [12], mixed hardwood swamp [13], and other areas threatened by invasive species [11].
- Areas of floodplain/lowland hardwood forest that are dominated by reed canary grass will be managed to minimize this risk. [10, 11, 12, 13]
- Reduce native invasive shrubs in oak woodland-brushland [10, 11, 13].
- Any timber harvesting that is done in the lowland hardwood forest should protect the plant community and remove non-natives. [7, 8]
- Management options to combat invasive species in oak forest might include prescribed fire, small, medium, and large-scale timber harvest, supplemental planting of oak both pre- and post- harvest, and post-sale silvicultural treatment efforts. [10, 13]
- Areas of floodplain/lowland hardwood forest that are regenerating box elder as the major understory species will be managed to encourage the regeneration of overstory species such as cottonwood and silver maple and decrease the dominance of box elder. [10, 11]
- GDS-7A Limit Damage to Forests from Insects, Disease, and Non-native Invasive Species to Acceptable Levels Where Feasible. [1]
- Brush cutting to control woody competition may be necessary in the wet meadow. [mixed hardwood swamp] [13]

K. Climate change [1]

- Management on State forest land attempts to plan for forest cover types that historically occurred within these ecosystems together with current knowledge and future research findings about potential climate change scenarios, and adapts accordingly. [1]

L. Impact of disturbance [1]

- GDS-7A Limit Damage to Forests from Insects, Disease, and Non-native Invasive Species to Acceptable Levels Where Feasible. [1]
- GDS-7B Reduce the Negative Impacts Caused by Wildlife Species on Forest Vegetation on State Forest Lands. [1]

- GDS-12A Natural Disturbance Events that Occur on State Land Within the Subsections are Promptly Evaluated to Determine the Appropriate Forest Management Needed to their Impacts. [1]

IV. Social factors [1, 2, 3, 4, 5, 7, 8]

M. Research and communication needs [1, 2, 3, 7, 8]

- GDS 15A: Continue to cooperate and coordinate with adjacent land owners (public and private) supporting the overall multiple use and enjoyment concept that applies to state administered land. [1]
- Research populations, habitats, and human attitudes/activities [2]
- Create performance measures and maintain information systems [2]
- Increase and improve scientific investigations, monitoring, and evaluations so that management decisions are based on good biological and social information. [3]
- Increase efforts at standardizing and sharing information among fisheries professionals so that trout management decisions are based on sound biological and social information [3]
- Provide for efficient and healthy methods of communication and dialog among trout anglers, with other stakeholders, and with Fisheries staff so that issues can be discussed and resolved. [3]
- Update CSA and MCBS data [7]
- Improve Forest Inventory Data and Management Practices [8]

N. Recreation and cultural needs [1, 2, 3, 7, 8]

- Provide sustainable recreation opportunities [7, 8]
- Develop outreach and recreation actions [2]
- GDS-9A Minimize Forest Management Impacts on Visual Quality in Sensitive Areas. [1]
- GDS-11A Cultural Resources are Protected on State-administered Lands. [1]
- Provide, maintain, and enhance diverse trout angling opportunities on as many streams throughout southeast Minnesota as possible so that trout management programs can meet the needs of as many anglers as possible. [3]
- Establish guidelines for the utilization of hatchery-reared trout so that additional angling opportunities are continued [3]

O. Development and land use [1, 4, 5]

- Acquire Private lands for resource protection that could be developed causing land-use conflicts with adjacent Division of Forestry administered land [4, 5]
- GDS-10A Forest access routes are well planned and there is a high level of collaboration with adjacent landowners to share access and minimize new construction. [1]
- GDS 14A: The changing structural and agricultural development pattern will be considered as forest management is implemented in the subsection. [1]

P. Public education needs [2, 3]

- Develop outreach and recreation actions [2]
- Provide information to anglers and other stakeholders so that they are well informed about fisheries management and other coldwater resources in these streams. [3]



Individual Plan Summaries

1. DRAFT 2013 Subsection Forest Resource Management Plan - Blufflands/Rochester Plateau

Document Title	Source	Date	URL or Address
Blufflands/Rochester Plateau Subsection Forest Resource Management Plan	Minnesota Department of Natural Resources, Division of Forestry	Nov. 2013	Minnesota Dept. of Natural Resources Division of Forestry 500 Lafayette Rd. St. Paul, MN 55155-4040

Geographic Extent / Scope:

This Subsection Forest Resource Management Plan (SFRMP) process considers state forest lands administered by the Department of Natural Resources (DNR), Divisions of Forestry, Parks and Trails and Fish and Wildlife – Wildlife Section in the *Blufflands/Rochester Plateau Subsections* landscape units (Blufflands ecological landscape unit and the Rochester Plateau ecological landscape unit). These units cover approximately 2.6 million acres in an area from near the Twin Cities metropolitan area on the north, southeastward to the Iowa border. (p. 1.6)

Organizations / Agencies involved in plan creation:

MN DNR: Division of Forestry, Div. of Fish and Wildlife, Div. of Ecological and Water Resources (p. iv) [...] Decision-making by the team is through an informed consent process. Managers of adjacent county, federal, tribal, and industrial forest lands may be invited to provide information about the condition of their forest lands and their future management direction. Data relating to all ownerships are used in the planning process. (p. 1.13)

Info on Planning Process:

The recommended desired outcomes, goals, and strategies developed for the applicable landscape regions by regional landscape committees under the direction of the Minnesota Forest Resources Council (MFRC) Landscape Program were considered in developing this SFRMP. By considering the recommendations from the landscape region plans, the decisions for management of DNR-administered lands incorporate recommendations from a broader landscape perspective across all ownerships and assists in cooperation across ownerships in this larger landscape area. (p.1.14)

Process Overview (p. 1.14, abbreviated):

- Step 1: Initiating the Planning Process
- Step 2: Preliminary Issue and Assessment Identification
- Step 3: Strategies, Desired Future Composition, and Stand Selection Criteria
- Step 4: Draft List of Stands to be Treated and New Access Needs
- Step 5: Final Plan

Purpose of plan:

A SFRMP is a DNR plan for vegetation management on forest lands administered by the DNR divisions of Forestry, Fish and Wildlife, and Parks and Trails. Vegetation management includes actions that affect the composition and structure of forest lands, such as timber harvesting,

thinning, prescribed burning, biomass harvest, and reforestation. [...] Consistent with state policy (Minnesota Statutes 89A), the SFRMP process will pursue the sustainable management, use, and protection of the state's forest resources to achieve the state's economic, environmental, and social goals (p1.12) [...]...the end result of the planning process will be two key products:

- **Desired Future Composition (DFC) Goals:** The goals will include long-term (50 years or more) and short-term (10 years) desired changes in the structure and composition of DNR forest lands in the subsection(s)...
- **List of DNR Forest Stands to be Treated over the Next 10-year Period.** SFRMPs will identify forest stands on DNR Forestry- and Fish and Wildlife-administered lands that are proposed for treatment (e.g., harvest, thinning, regeneration, and re-inventory) over the 10-year plan implementation period... (p1.13)

[Notes to the reader:

- *This document is in a draft state, current going through the public review process at the time of analysis (December 2013).*
- *The “General Direction Statements” (GDSs) presented in Table 2.1a in Chapter 2 are not consistent with the GDSs presented in Chapter 3. The GDSs as presented in Chapter 3 are listed below as Goals.*
- *Letters and letter/number combinations that the DNR assigned to statement were retained to show connections between Issues, Focused Issues, General Direction Statements, and Strategies]*

ISSUES (Issues) (Table 2.1a, p. 2.20-2.28)

1. A. Desired age-class distribution
2. B. Desired mix of forest composition, structure, spatial arrangement, growth stages and C. native plant communities
3. D. Harvest level
4. E. Biological diversity
5. F. Rare features
6. G. Wildlife habitat
7. H. Riparian and aquatic areas
8. I. Timber productivity
9. J. Disturbance Impacts on Forest Ecosystems
10. K. Climate Change
11. L. Visual quality
12. M. Cultural resources
13. N. Balancing forest management needs with statutory requirements
14. O. Natural Resource Management impacted by structural and agricultural development
15. P. Landscape Resource Management on Limited Public Lands

VISIONS (Focused Issues) (Table 2.1a, p. 2.20-2.28)

1. A1. What are the desired age-class and growth-stage distribution of forest types across the landscape?
2. A3. What is the appropriate amount, type, and location of old forest
3. A4. What is the appropriate amount, type, and location of young, early successional forest?
4. B1. What is the appropriate forest composition, structure, representation of growth stages, within-stand diversity, spatial arrangement of vegetative types, and native plant community

- distributions necessary to maintain sustainability goals for biodiversity, forest health, and productivity across the subsection? How do we get there?
5. B2. How will we ensure restoration of important component tree species that have declined within forest communities in the subsection?
 6. B3. How will we maintain forest communities of particular concern in the subsection?
 7. B4. How can intensive management of forest communities be adapted to retain some of the characteristics of natural stand replacement disturbance events?
 8. B5. How can management on state lands, especially large patch management, better reflect natural landscape patterns (the size and configuration of growth stages and types resulting from broad-scale natural disturbances) in the subsection?
 9. B6. How do we limit forest fragmentation and maintain connectivity between habitats?
 10. C1. What is the appropriate timber harvest level on state lands with consideration for the sustainability of all forest resources?
 11. C2. How can we ensure adequate and sustainable “non-timber forest products” for the future?
 12. D1. How can management of stands within large areas of biodiversity significance be adapted to enhance biodiversity and native plant community composition, structure, and function?
 13. D2. How do we plan to retain and restore within-stand structural complexity (e.g. vertical structure, stem size and density, coarse woody debris, and pit and mound micro-topography) on actively managed lands where natural succession pathways are truncated (cut short)?
 14. E1. How can we ensure that rare plants and animals, their habitats, and other rare features are protected in the subsection?
 15. F1. How do we manage forest vegetation to balance the habitat needs of game and nongame species?
 16. G1. How can we address the impacts of forest management on permanent wetlands, wetland inclusions, and seasonal ponds?
 17. G2. What vegetative management activities will be allowed to take place within the riparian management zone (RMZ) and how will the appropriate width of the RMZ be determined to minimize the impacts of forest management activities on water quality, fisheries, and wildlife habitat?
 18. G3. How can we address cumulative impacts to aquatic resources of forest management on a watershed/sub-watershed level?
 19. H1. How can we increase timber productivity on state lands?
 20. I1. How Do We Address the Impacts of Forest Insects and Disease on Forest Ecosystems?
 21. I2. How Will We Respond to Non-native Invasive Species Threats/Invasions?
 22. I3. How Do We Address the Impacts of Forest Insects and Disease on Forest Ecosystems?
 23. I4. How Do We Manage Vegetation to Reduce Herbivory, Crop Depredation, Nuisance Animals, Potential Spread of Animal Disease, and Possible Human Health Issues (e.g., Lyme Disease)?
 24. J1. How Should Forest Management Respond to Global Climate Change Within the Planning Period?
 25. K1. How will forest management activities minimize impacts on visual quality?
 26. M1. How will cultural resources be protected during forest management activities on state-administered lands?

27. N1. How will land managers achieve desired results and continue to uphold various state and federal statutes?
28. O1. How can land managers effectively implement comprehensive resource management while impacted by structural and agricultural development?
29. P1. How can land managers achieve “landscape” level management with the relatively limited public land base found in the Blufflands/Rochester Plateau subsections?

GOALS (General Direction Statements)/ STRATEGIES (Strategies) [Strategies are shown directly below their related Goal, as listed in Chapter 3 of the SFRMP.] (pp.3.22-3.80)

- GDS-1A Some stands on State lands will be managed to reflect the composition, structure, and function of native plant communities.
 - a. Use the *Field Guide to the Native Plant Communities in Minnesota: the Eastern Broadleaf Forest* and associated ECS Silvicultural Interpretations to classify stands to NPC and prepare silvicultural prescriptions.
 - b. Follow Strategies in GDS-2C relating to retaining components of various growth stages in stands.
- GDS-1B Species, age, and structural diversity within some stands will be maintained or increased.
 - a. Use selective harvesting to encourage diversity of species, ages, and stand structures.
 - b. Meet or exceed the *Site-Level Guidelines* designed to maintain a diversity of tree species within a stand.
 - c. Use the NPC Field Guide, Site Index, Soils Data, and ECS Silvicultural Interpretations to aid in determining the species composition and structure appropriate for the site.
 - d. Retain tree species, stand structure, and ground layer diversity within stands when prescribing timber stand improvement and thinning activities.
 - e. Reserve seed trees in harvest areas and site preparation areas, where possible.
 - f. Use the least intensive site preparation methods possible to ensure success.
 - g. Use harvest systems or methods that protect advance regeneration. Retain conditions that favor regeneration and understory initiation.
 - h. Identify some stands where succession is allowed to occur to encourage development of within-stand diversity. Movement to the next successional stage may be achieved with or without Harvest.
 - i. Increase and/or maintain by reserving from harvest, target species including quality oak species that would serve as a seed source after harvest as components within appropriate cover types. Silvicultural practices that may add or increase the presence of these target species will include planting, inter-planting, and artificial or natural seeding.
 - j. Manage planted and seeded stands to represent the array of plant diversity.
 - k. Encourage fruit and mast-producing species.
- GDS-2A The SFRMP treatment level for each cover type moves toward the desired age-class structure for even-aged managed cover types and improves the age-structure and timber quality of uneven-aged managed cover types.
 - a. Select stands for treatment to address age-class imbalances.
 - b. Give emphasis to treating stands older than normal rotation age.

- c. Identify and properly manage adequate old forest acres.
- d. Treatment levels result from rotation ages that will maintain adequate acres of young forest.
- e. Identify and account for planned increases/decreases in cover type acres in selecting acres to be included on the stand exam list.
- f. Provide a sustainable supply of timber while maintaining all other Strategies identified in this SFRMP.
- g. Apply selective harvest treatments to cover types managed through uneven-aged practices and thinning.
- h. Consider and account for potential biomass harvesting.
- i. Identify and defer stands identified as Old Growth
- GDS-2B The harvest of non-timber forest products is managed to provide a sustainable supply for humans while providing for wildlife habitat and biodiversity.
 - a. Consider known traditional gathering areas when managing other forest resources.
 - b. Supervise and enforce special product permit regulations to ensure that the site's capacity for future production is not jeopardized.
 - c. Consider the known locations of important wildlife habitats, rare native plant communities or species, and the possible impacts of non-timber forest products harvest practices before issuing special product permits.
 - d. Forest managers should judiciously monitor the gathering of species where there is little knowledge and understanding of their ecological sustainability requirements.
- GDS-3A Old forest in the subsections is distributed across the landscape to account for timber products, wildlife habitat, and ecological diversity.
 - a. Monitor old forest over the decades in even-aged managed cover types so that the desired amount of old forest across all ownerships continues to be provided.
 - b. Manage riparian zones primarily to reflect old forest conditions.
 - c. Allow some stands to naturally succeed to long-lived cover types with, or without the use of harvest.
 - d. Manage designated Old-Growth stands according to DNR guidelines.
 - e. Meet or exceed the MFRC *Voluntary Site-Level Forest Management Guidelines (Site-Level Guidelines)* to retain components of Old Forest in even-aged managed cover types
 - f. Use silvicultural treatments that retain Old Forest components in some stands.
 - g. Consider the status of Old Forest within subsections when making decisions to add and offer unplanned wood for harvest.
- GDS-3B: Endangered, Threatened, and Special Concern Species and their key habitats are protected, maintained, or enhanced in the subsections.
 - a. Provide access to the Natural Heritage Information System to DNR staff through the DNR Quick Layers in ArcMap.
 - b. During the development of the 10-year Stand Examination and Annual Stand Examination Lists, land managers check the rare features database and identify for follow-up consultation all stands proposed for treatment that includes a rare feature.
 - c. Harvest prescriptions and management objectives identify and implement measures that protect rare features.
 - d. Apply Current *SGCN* and *Key Habitat* data to management decisions.
 - e. Incorporate new *SGCN* and *Key Habitat* locations and data as they are collected in the subsections.

- f. Stand-level management accounts for *SGCN* and *Key Habitats*.
 - g. Apply special management recommendations for known rare features, *Species of Greatest Conservation Concern*, and *Key Habitats*.
 - h. Management proposals identify and implement measures that protect rare features.
- GDS-3C Plan for forest cover types that historically occurred within these ecosystems together with current knowledge about potential climate change scenarios.
 - a. Increase the acres of native prairie, savanna and grasslands primarily on dry unproductive red cedar cover types.
 - b. Increase mixed-forest conditions in some stands in all cover types.
 - c. Forest composition goals and objectives are consistent with the *MFRC Landscape Plans*.
- GDS-3D Managers of State Lands in MBS Sites of Statewide High and Outstanding Biodiversity Significance and High Conservation Value Forests will implement Measures to sustain or minimize the Loss to the Biodiversity Significance.
 - a. Identify HCVF and consult the *High Biodiversity Plan Guidance* document for that HCVF as stand management is implemented.
 - b. Consider the broader context and significance of the HCVF site as a whole when assigning management objectives and designing silvicultural prescriptions.
 - c. Determine location and composition of stand conversions based on NPCs. (GDS-1A)
 - d. Allow some stands to succeed to the next Native Plant Community Growth Stage, with or without harvest.
 - e. Emulate the within-stand composition, structure, and function of NPC Growth Stages when managing stands in HCVF sites.
 - f. Apply variable density thinning during harvest or reforestation.
 - g. Apply variable retention harvest techniques during harvest.
 - h. Increase the use of prescribed fire as a silvicultural technique in managing fire-dependent NPCs.
 - i. Locate roads to minimize fragmentation of a HCVF site.
 - j. Emulate natural disturbance conditions in stand management.
 - k. Land status and timber productivity will be considered while implementing the other Strategies on stands identified for management in these HCVF sites.
 - l. Divisions of Forestry, Fish and Wildlife, and Ecological and Water Resources personnel will communicate with other landowners, as opportunities arise, to inform them of the significance of these HCVF sites and management options that could be implemented to address the biodiversity objectives of these HCVF sites.
- GDS-3E Rare Native Plant Communities are protected, maintained, or enhanced in the subsections.
 - a. Document and manage known locations of NPCs with a Global rank of Critically Imperiled (G1) or Imperiled (G2), and manage to maintain their ecological integrity.
 - b. Document and manage known locations of NPCs with a Statewide rank of Critically Imperiled (S1) or Imperiled (S2), and manage to maintain their ecological integrity, as part of identified HCVF sites and High Biodiversity Areas.
 - c. Apply special management to stands that are identified as high quality examples of rare native plant communities.

- GDS-3F State Lands will attempt to provide for a representation of each growth stage in each Native Plant Community
 - a. Document growth stages of the stands selected for treatment in the subsections.
 - b. Strive to emulate the within-stand composition, structure, and function of NPC growth stages when managing stands.
 - c. Consider the contribution of inoperable stands and reserved areas (e.g., old growth, SNAs, state parks) in providing representations of growth stages when developing prescriptions.
 - d. Manage designated representative ecosystems (RSAs) and High Conservation Value Forests (HCVF) consistent with DNR direction to achieve distributions of native plant communities.
 - e. Apply ECS Silvicultural Interpretations when proposing stand management prescriptions.
- GDS-3G Young, early-successional forest is distributed across the landscape over time.
 - a. Move even aged managed cover types toward a balanced age-class structure. (see also GDS-2A)
 - b. Increase the treatment level for the over mature oak cover type. (see also GDS-9A)
 - c. Regenerate the Oak cover type.
 - d. Maintain young, early successional forest in a variety of stand sizes to provide habitat for associated species.
- GDS-4A Adequate habitat and habitat components exist, simultaneously at multiple scales, to provide for nongame species found in the subsections.
 - a. Provide old forest distributed across the landscape to accommodate the needs of non-game species. (See GDS-3A).
 - b. Provide young forest distributed across the landscape to accommodate the needs of non-game species.
 - c. Manage to retain the integrity of riparian areas and provide protection for seasonal and permanent wetlands.
 - d. Provide stand management that addresses the needs of species that depend on perches, cavity trees, bark foraging sites, and downed-woody debris.
 - e. Provide for the needs of wildlife species associated with characteristics of important native plant communities in the subsections.
 - f. Create and maintain within-stand diversity to benefit non-game species.
 - g. Manage to favor native plant communities and retain elements of biodiversity significance.
 - h. Consider Natural Heritage Program Data and other rare species information during development of both the 10-year and Annual Stand Examination Lists.
 - i. Apply the DNR management recommendations for habitats of nongame species as described in DNR guidelines and policies.
- GDS-4B Adequate habitat and habitat elements exist, simultaneously at multiple scales, to provide for game species found in the subsections.
 - a. Provide young forest distributed across the landscape to accommodate the needs of game species.
 - b. Provide old forest distributed across the landscape to accommodate the needs of game species.
 - c. Provide a balanced age-class structure in cover types managed with even-aged silvicultural systems.

- d. Increase the productivity and maintain the health of even-aged managed cover type stands.
 - e. Create and maintain within-stand diversity to benefit game species.
- GDS-5A Riparian areas are managed to provide critical¹ habitat for fish, wildlife, and plant species.
 - a. Meet or exceed the *MFRC Site-Level Guidelines* relating to riparian areas
 - b. Using the NPC Field Guide and associated ECS Silvicultural Interpretations, manage for a species appropriate for the site.
 - c. Follow the recommendations identified in local and regional water resource management agency plans as they relate to and affect state-administered lands.
 - d. Follow strategies outlined in *Tomorrow's Habitat for the Wild and Rare*.
- GDS-5B Forest management on state lands adequately protects wetlands, seasonal ponds including oxbows, and sinkholes.
 - a. Meet or Exceed *MFRC Site-Level Guidelines*.
 - b. Consider landforms (e.g., St. Laurence formation and Decorah Edge geologic layers) that have seasonal ponds, side hill seeps, perched wetlands and sinkholes, and address those features in site-specific prescriptions that are developed during the Stand Examination Field Visit.
- GDS- 6A Even-aged managed cover types will be managed to move toward a
 - a. Target the selection of stand treatment acres to the appropriate age-classes. balanced age-class structure.
- GDS-6B Timber productivity and quality on state timber lands is increased.
 - a. Move toward harvesting stands in even-aged managed cover types at their normal rotation ages.
 - b. As opportunities exist, thin or selectively harvest in some oak, lowland hardwood and walnut stands.
 - c. Include silvicultural treatments such as site preparation, inter-planting, release from competition (e.g., herbicide application or hand release), and timely thinning in plantation management, to increase productivity.
 - d. Apply and supervise the implementation of the *MFRC Site-Level Guidelines* on treatment sites.
 - e. Continue to implement, supervise, and enforce current DNR timber sale regulations to protect and minimize damages to sites or residual trees from treatment activities.
 - f. Manage some stands for large diameter, high-quality sawtimber products by retaining adequate stocking and basal area.
 - g. Respond to insect and disease problems, as appropriate. (GDS-7A)
- GDS-7A Limit Damage to Forests from Insects, Disease, and Non-native Invasive Species to Acceptable Levels Where Feasible.
 - a. Identify and monitor insect, disease, and non-native invasive species populations as part of the forest health monitoring program and document their occurrence on state-managed lands.
 - b. Follow Minnesota DNR Operational Order 113 (Invasive Species) and appropriate Division guidelines to minimize the spread of non-native invasive species during forest management activities.

¹ *Critical habitat*: habitat or habitat elements that must be present and properly functioning to assure the continued existence of the species in question.

- c. Adhere to the Minnesota DNR 2010 Invasive Species Program Directive on forestry lands.
 - d. Manage existing forest insect and disease problems, as appropriate.
 - e. Use the least intensive site preparation methods possible to ensure success.
 - f. Manage stands to reduce the potential impact of insects and diseases.
- GDS-7B Reduce the Negative Impacts Caused by Wildlife Species on Forest Vegetation on State Forest Lands.
 - a. Improve implementation of Strategies to prevent wildlife depredation
 - b. Consider the potential for wildlife impacts to planted or naturally regenerating trees before damage occurs.
 - c. Focus forest regeneration efforts in areas less likely to be negatively impacted by wildlife.
 - d. On sites where damage from wildlife species is anticipated, use mitigation techniques to reduce damage when planting susceptible tree species.
 - e. When deciding what to plant, consider species or stock sources that are less palatable to wildlife.
- GDS-8A Forest Management on State Lands Attempts to foster adaptation to the effects of Global Climate Change. Management is Based on our Current Knowledge and will be Adjusted Based on Future Research Findings.
 - a. Maintain or increase species diversity across the subsections.
 - b. Maintain or increase structural diversity across the subsections.
 - c. Maintain connectivity that permits the migration of plants and animals as climate changes the landscape.
 - d. Evaluate site conditions with respect to climate change when selecting tree species for regeneration.
 - e. Consider the effects of forest management on carbon sequestration and carbon stocks.
 - f. Consult Tree Suitability tables in determining conversions and stand management.
 - g. Apply the MFRC *Site-Level Guidelines* for tree species at the edge of their range.
- GDS-9A Minimize Forest Management Impacts on Visual Quality in Sensitive Areas.
 - a. Apply the *Site-Level Guidelines* on visual quality on all vegetative management activities.
 - b. Work to resolve conflicts between recreational users and forest management to assure sustainability of forest resources and plant communities.
 - c. Resolve conflicts between forest management directions and constraints of HCVF, RSAs, or Old Growth with recreation uses.
- GDS-10A Forest access routes are well planned and there is a high level of collaboration with adjacent landowners to share access and minimize new construction.
 - a. Continue to seek cooperation with adjacent landowners to retain existing access to State land and to coordinate new road access development and maintenance across multiple ownerships.
 - b. Follow Minnesota Statutes and guidelines and DNR Policies for state forest roads.
 - c. Apply the Department direction regarding access roads across sensitive areas that have been reserved from treatment or identified for special management during the 10-year implementation period.
 - d. Follow Strategies identified under other General Direction Statements that apply to roads throughout the planning, development, and disposition of forest roads.

- e. Implement timber access planning .
 - f. Acquire lands to enhance access to State owned lands.
- GDS-11A Cultural Resources are Protected on State-administered Lands.
 - a. Annual stand exam lists are reviewed by DNR archeologists; recommendations for mitigation are implemented as part of sale design
- GDS-12A Natural Disturbance Events that Occur on State Land Within the Subsections are Promptly Evaluated to Determine the Appropriate Forest Management Needed to their Impacts.
 - a. The Subsections' planning Team will evaluate large-scale (100's to 1000's of acres) disturbance events to determine appropriate action.
 - b. Local land managers will evaluate and determine appropriate actions for small-scale (10s of acres) disturbance events.
- GDS-13A: School Trust Lands will be Managed for Long-Term Economic Return to the Minnesota School Trust Fund.
- GDS-13B: The Minnesota School Trust Fund will be Compensated for any Management Activities That Limit the Economic Return for School Trust Lands.
- GDS 14A: The changing structural and agricultural development pattern will be considered as forest management is implemented in the subsection.
 - a. Inform adjacent landowners of nearby management activities on the state lands and, when feasible, mitigate any impacts.
 - b. Encourage private landowners, local governments and other land managers to implement compatible land uses adjacent to state land through land use management actions.
 - c. Work with other divisions to mitigate the impacts of forest management on recreational users.
 - d. Inform adjacent landowners, local governments and stakeholders of forest management planning processes.
- GDS 15A: Continue to cooperate and coordinate with adjacent land owners (public and private) supporting the overall multiple use and enjoyment concept that applies to state administered land.
 - a. influence management on private lands through stewardship planning efforts.
 - b. Disseminate final plans to other land managers to use in their planning processes.
 - c. Strategically purchase lands with conservation values.

2. Minnesota's State Wildlife Action Plan (or Comprehensive Wildlife Conservation Strategy)

Document Title	Source	Date	URL or Address
Tomorrow's Habitat for the Wild and Rare: An Action Plan for Minnesota Wildlife	Minnesota Department of Natural Resources, Division of Ecological Services	Jan. 2006	http://files.dnr.state.mn.us/assistance/nrplanning/bigpicture/cwcs/tomorrows_habitat.pdf

Geographic Extent / Scope:

The explicit geographic scope of the CWCS is the state of Minnesota. Within that large frame the Ecological Classification System (ECS) of Minnesota delineates 4 provinces, 13 sections, 25

subsections, and many smaller land-type associations (see Figure 5.1). The 2005 CWCS uses the province and the subsection scales to present the conservation actions needed to better manage SGCN. [Only the four forested subsections found within the Southeast Landscape are included below – Big Woods (BW), Blufflands (BL), Oak Savanna (OS), Rochester Plateau (RP).] (p. 36)

Organizations / Agencies involved in plan creation:

The Minnesota DNR, The Nature Conservancy, Minnesota Audubon, the U.S. Fish and Wildlife Service (p. 35, p. 8), The U.S. Geological Survey, the University of Minnesota, the Natural Resources Research Institute, and many others (p. 8)

Info on Planning Process:

Like most planning efforts, the CWCS created a logical structure to move from the big picture to discrete actions. The CWCS logical structure encompasses purpose, time frame, geographic scope, goals, management challenges and strategies, and priority conservation actions. (p. 35) [...] The 2005 CWCS is a 10-year strategy. The CWCS partnership intends to revise the CWCS in 2015 [...] the 2005 CWCS articulates action for the first 10 years of a 100-year effort to secure a sustainable future for native fauna in Minnesota. (p. 36)

Purpose of plan:

The purpose of the CWCS is to maintain the species composition of Minnesota's native fauna. The CWCS defines the native fauna as those species present in the geographic area of Minnesota at the point of statehood (1858). Unfortunately, a number of native fauna have already been extirpated from the state. The purpose of the CWCS is to ensure that no more species are lost, that species with very low populations increase to self-sustaining levels, and that other SGCN populations are maintained at self-sustaining levels over time. (p. 35)

ISSUES [Management Challenges] (p. 37)

1. There has been significant loss and degradation of habitat
2. Some SGCN populations require additional management attention
3. More information about SGCN and SGCN management is needed
4. Need for greater appreciation of SGCN by people

Species Problem Analysis (pp. 77,83,95,101) [percentages indicate "percentage of SGCN in the Subsection for which this is a problem"]

5. Habitat Loss in MN [BW 85%; BL 82%; OS 86%; RP 86%]
6. Habitat Degradation in MN [BW 90%; BL 88%; OS 91%; RP 90%]
7. Habitat Loss/Degradation Outside of MN [BW 31%; BL 27%; OS 31%; RP 32%]
8. Invasive Species and Competition [BW 36%; BL 29%; OS 30%; RP 29%]
9. Pollution [BW 40%; BL 35%; OS 32%; RP 30%]
10. Social Tolerance/Persecution/Exploitation [BW 24%; BL 23%; OS 20%; RP 21%]
11. Disease [BW 4%; BL 1%; OS 2%; RP 1%]
12. Food Source Limitations [BW 3%; BL 4%; OS 5%; RP 2%]
13. Other [BW 13%; BL 21%; OS 18%; RP 18%]

VISIONS [Goals] (p. 36)

1. Stabilize and increase SGCN populations [I1, I2]
2. Improve knowledge about SGCN [I3]

3. Enhance people's appreciation and enjoyment of SGCN [I4]

GOALS (Strategies) (p. 37)

1. Identify key SGCN habitats and focus management efforts on them [V1]
2. Manage federal and state listed species effectively [V1]
3. Manage emerging issues affecting specific SGCN populations [V1]
4. Survey SGCN populations and habitats [V2]
5. Research populations, habitats, and human attitudes/activities [V2]
6. Monitor long-term changes in SGCN populations and habitats [V2]
7. Create performance measures and maintain information systems [V2]
8. Develop outreach and recreation actions [V3]

STRATEGIES (Priority Conservation Actions)

Big Woods [Subsection] (p. 80-81)

1. **Upland deciduous aspen-oak forest habitats**, actions include:
 - a. Incorporate SGCN habitat concerns in forest management planning
 - b. Provide technical assistance and protection opportunities to interested individuals and organizations [G1]
2. **Upland deciduous hardwood forest habitats**, actions include:
 - a. Incorporate SGCN habitat concerns in forest management planning
 - b. Provide technical assistance and protection opportunities to interested individuals and organizations [G1]
3. **Oak savanna habitats**, actions include:
 - a. Manage invasive species
 - b. Use prescribed fire and other practices to maintain savanna [G1]
 - c. Encourage oak savanna restoration efforts
 - d. Provide technical assistance and protection opportunities to interested individuals and organizations [G1]
4. **Non-forested wetlands**, actions include:
 - a. Enforce the Wetlands Conservation Act
 - b. Manage habitats adjacent to wetlands to enhance SGCN values
 - c. Provide technical assistance and protection opportunities to interested individuals and organizations
5. **Shallow lake habitats**, actions include:
 - a. Maintain good water quality in shallow lakes
 - b. Enhance near-shore terrestrial and aquatic habitats
 - c. Provide technical assistance and protection opportunities to interested individuals and organizations [G1]
6. **Shoreline habitats**, actions include:
 - a. Support the protection of shoreline from damaging development
 - b. Enhance SGCN habitat along the shoreline
 - c. Provide technical assistance and protection opportunities to interested individuals and organizations [G1]
7. **Stream habitats**, actions include:
 - a. Maintain good water quality, hydrology, geomorphology, and connectivity in priority stream reaches

- b. Maintain and enhance riparian areas along priority stream reaches
 - c. Provide technical assistance and protection opportunities to interested individuals and organizations [G1]
- 8. Implement existing federal recovery plans [G2]
- 9. Develop and implement additional recovery plans [G2]
- 10. Provide technical assistance to managers, officials, and interested individuals related to listed species [G2]
- 11. Enforce federal and state endangered species laws, as well as other wildlife laws and regulations [G2]
- 12. Work with partners to effectively address emerging issues affecting SGCN populations [G3]
- 13. Enforce federal and state wildlife laws and regulations [G3]
- 14. Survey SGCN populations within the subsection, actions include:
 - a. Continue MCBS rare animal surveys
 - b. Survey SGCN populations related to key habitats
 - c. Survey wildlife taxa underrepresented by MCBS animal surveys [G4]
- 15. Survey SGCN habitats within the subsection, actions include:
 - a. Assess the amount and quality of key habitats and map their locations [G4]
- 16. Research important aspects of species populations within the subsection, actions include:
 - a. Better understand the life history and habitat requirements of important SGCN [G5]
- 17. Research important aspects of SGCN habitats within the subsection, actions include:
 - a. Identify best management practices for maintaining and enhancing key habitats
 - b. Identify important patterns and distributions of key habitats to better support SGCN populations
 - c. Identify important functional components within key habitats to support specific SGCN
 - d. Explore important, emerging SGCN habitat management issues [G5]
- 18. Research important aspects of people's understanding of SGCN within the subsection, actions include:
 - a. Identify people's attitudes and values regarding SGCN
 - b. Identify places and ways people can enjoy and appreciate SGCN [G5]
- 19. Monitor long-term trends in SGCN populations, actions include:
 - a. Continue existing population monitoring activities
 - b. Develop additional monitoring activities for specific SGCN populations [G6]
- 20. Monitor long-term trends in SGCN habitats, actions include:
 - a. Develop long-term monitoring activities for important SGCN habitats [G6]
- 21. Create and use performance measures, actions include:
 - a. Develop partner-specific performance measures within the subsection
 - b. Develop project-specific performance measures for SWG-funded projects
 - c. Actively incorporate monitoring and performance measure information to enhance adaptive management [G7]
- 22. Maintain and update information management systems [G7]
- 23. Create new information and communicate with people to enhance their appreciation of SGCN [G8]
- 24. Create opportunities for people to appropriately enjoy SGCN-based recreation [G8]

Blufflands [Subsection] (p. 86)

25. **Oak savanna habitats**, actions include:
 - a. Manage invasive species
 - b. Use prescribed fire and other practices to maintain savanna
 - c. Encourage oak savanna restoration efforts
 - d. Provide technical assistance and protection opportunities to interested individuals and organizations [G1]
26. **Nonforested wetlands**, actions include:
 - a. Enforce the Wetlands Conservation Act
 - b. Manage habitats adjacent to wetlands to enhance SGCN values
 - c. Provide technical assistance and protection opportunities to interested individuals and organizations [G1]
27. **Cliff and bluff habitats**, actions include:
 - a. Support the protection of cliff and bluff habitats from damaging development
 - b. Enhance cliff and bluff habitats to support SGCN
 - c. Provide technical assistance and protection opportunities to interested individuals and organizations [G1]
28. **Stream habitats**, actions include:
 - a. Maintain good-water quality, hydrology, geomorphology, and connectivity in priority stream reaches
 - b. Maintain and enhance riparian areas along priority stream reaches
 - c. Provide technical assistance and protection opportunities to interested individuals and organizations [G1]
29. Implement existing federal recovery plans [G2]
30. Develop and implement additional recovery plans [G2]
31. Provide technical assistance to managers, officials, and interested individuals related to listed species [G2]
32. Enforce federal and state endangered species laws, as well as other wildlife laws and regulations [G2]
33. Work with partners to effectively address emerging issues affecting SGCN populations [G3]
34. Enforce federal and state wildlife laws and regulations [G3]
35. Survey SGCN populations within the subsection, actions include:
 - a. Continue MCBS rare animal surveys
 - b. Survey SGCN populations related to key habitats
 - c. Survey wildlife taxa underrepresented by MCBS animal surveys [G4]
36. Survey SGCN habitats within the subsection, actions include:
 - a. Assess the amount and quality of key habitats and map their locations [G4]
37. Research important aspects of species populations within the subsection, actions include:
 - a. Better understand the life history and habitat requirements of important SGCN [G5]
38. Research important aspects of SGCN habitats within the subsection, actions include:
 - a. Identify best management practices for maintaining and enhancing key habitats
 - b. Identify important patterns and distributions of key habitats to better support SGCN populations
 - c. Identify important functional components within key habitats to support specific SGCN

- d. Explore important, emerging SGCN habitat management issues [G5]
 - 39. Research important aspects of people's understanding of SGCN within the subsection, actions include:
 - a. Identify people's attitudes and values regarding SGCN
 - b. Identify places and ways people can enjoy and appreciate SGCN [G5]
 - 40. Monitor long-term trends in SGCN populations, actions include:
 - a. Continue existing population monitoring activities
 - b. Develop additional monitoring activities for specific SGCN populations [G6]
 - 41. Monitor long-term trends in SGCN habitats, actions include:
 - a. Develop long-term monitoring activities for important SGCN habitats [G6]
 - 42. Create and use performance measures, actions include:
 - a. Develop partner-specific performance measures within the subsection
 - b. Develop project-specific performance measures for SWG-funded projects
 - c. Actively incorporate monitoring and performance measure information to enhance adaptive management [G7]
 - 43. Maintain and update information management systems [G7]
 - 44. Create new information and communicate with people to enhance their appreciation of SGCN [G8]
 - 45. Create opportunities for people to appropriately enjoy SGCN-based recreation [G8]

Oak Savanna [Subsection] (p. 98)

- 46. **Oak savanna habitats**, actions include:
 - a. Manage invasive species
 - b. Use prescribed fire and other practices to maintain savanna
 - c. Encourage oak savanna restoration efforts
 - d. Provide technical assistance and protection opportunities to interested individuals and organizations [G1]
- 47. **Nonforested wetlands**, actions include:
 - a. Enforce the Wetlands Conservation Act
 - b. Manage habitats adjacent to wetlands to enhance SGCN values
 - c. Provide technical assistance and protection opportunities to interested individuals and organizations [G1]
- 48. **Stream habitats**, actions include:
 - a. Maintain good water quality, hydrology, geomorphology, and connectivity in priority stream reaches
 - b. Maintain and enhance riparian areas along priority stream reaches
 - c. Provide technical assistance and protection opportunities to interested individuals and organizations [G1]
- 49. Implement existing federal recovery plans [G2]
- 50. Develop and implement additional recovery plans [G2]
- 51. Provide technical assistance to managers, officials, and interested individuals related to listed species [G2]
- 52. Enforce federal and state endangered species laws, as well as other wildlife laws and regulations [G2]
- 53. Work with partners to effectively address emerging issues affecting SGCN populations [G3]

54. Enforce federal and state wildlife laws and regulations [G3]
55. Survey SGCN populations within the subsection, actions include:
 - a. Continue MCBS rare animal surveys
 - b. Survey SGCN populations related to key habitats
 - c. Survey wildlife taxa underrepresented by MCBS animal surveys [G4]
56. Survey SGCN habitats within the subsection, actions include:
 - a. Assess the amount and quality of key habitats and map their locations [G4]
57. Research important aspects of species populations within the subsection, actions include:
 - a. Better understand the life history and habitat requirements of important SGCN [G5]
58. Research important aspects of SGCN habitats within the subsection, actions include:
 - a. Identify best management practices for maintaining and enhancing key habitats
 - b. Identify important patterns and distributions of key habitats to better support SGCN populations
 - c. Identify important functional components within key habitats to support specific SGCN
 - d. Explore important, emerging SGCN habitat management issues [G5]
59. Research important aspects of people's understanding of SGCN within the subsection, actions include:
 - a. Identify people's attitudes and values regarding SGCN
 - b. Identify places and ways people can enjoy and appreciate SGCN [G5]
60. Monitor long-term trends in SGCN populations, actions include:
 - a. Continue existing population monitoring activities
 - b. Develop additional monitoring activities for specific SGCN populations [G6]
61. Monitor long-term trends in SGCN habitats, actions include:
 - a. Develop long-term monitoring activities for important SGCN habitats [G6]
62. Create and use performance measures, actions include:
 - a. Develop partner-specific performance measures within the subsection
 - b. Develop project-specific performance measures for SWG-funded projects
 - c. Actively incorporate monitoring and performance measure information to enhance adaptive management [G7]
63. Maintain and update information management systems [G7]
64. Create new information and communicate with people to enhance their appreciation of SGCN [G8]
65. Create opportunities for people to appropriately enjoy SGCN-based recreation [G8]

Rochester Plateau [Subsection] (p. 104)

66. **Oak savanna and brush prairie habitats**, actions include:
 - a. Manage invasive species
 - b. Use prescribed fire and other practices to maintain savanna
 - c. Encourage oak savanna restoration efforts
 - d. Provide technical assistance and protection opportunities to interested individuals and organizations [G1]
67. **Nonforested wetlands**, actions include:
 - a. Enforce the Wetlands Conservation Act
 - b. Manage habitats adjacent to wetlands to enhance SGCN values

- c. Provide technical assistance and protection opportunities to interested individuals and organizations [G1]
- 68. **Stream habitats**, actions include:
 - a. Maintain good water quality, hydrology, geomorphology, and connectivity in priority stream reaches
 - b. Maintain and enhance riparian areas along priority stream reaches
 - c. Provide technical assistance and protection opportunities to interested individuals and organizations [G1]
- 69. Implement existing federal recovery plans [G2]
- 70. Develop and implement additional recovery plans [G2]
- 71. Provide technical assistance to managers, officials, and interested individuals related to listed species [G2]
- 72. Enforce federal and state endangered species laws, as well as other wildlife laws and regulations [G2]
- 73. Work with partners to effectively address emerging issues affecting SGCN populations [G3]
- 74. Enforce federal and state wildlife laws and regulations [G3]
- 75. Survey SGCN populations within the subsection, actions include:
 - a. Continue MCBS rare animal surveys
 - b. Survey SGCN populations related to key habitats
 - c. Survey wildlife taxa underrepresented by MCBS animal surveys [G4]
- 76. Survey SGCN habitats within the subsection, actions include:
 - a. Assess the amount and quality of key habitats and map their locations [G4]
- 77. Research important aspects of species populations within the subsection, actions include:
 - a. Better understand the life history and habitat requirements of important SGCN [G5]
- 78. Research important aspects of SGCN habitats within the subsection, actions include:
 - a. Identify best management practices for maintaining and enhancing key habitats
 - b. Identify important patterns and distributions of key habitats to better support SGCN populations
 - c. Identify important functional components within key habitats to support specific SGCN
 - d. Explore important, emerging SGCN habitat management issues [G5]
- 79. Research important aspects of people's understanding of SGCN within the subsection, actions include:
 - a. Identify people's attitudes and values regarding SGCN
 - b. Identify places and ways people can enjoy and appreciate SGCN [G5]
- 80. Monitor long-term trends in SGCN populations, actions include:
 - a. Continue existing population monitoring activities
 - b. Develop additional monitoring activities for specific SGCN populations [G6]
- 81. Monitor long-term trends in SGCN habitats, actions include:
 - b. Develop long-term monitoring activities for important SGCN habitats [G6]
- 82. Create and use performance measures, actions include:
 - a. Develop partner-specific performance measures within the subsection
 - b. Develop project-specific performance measures for SWG-funded projects
 - c. Actively incorporate monitoring and performance measure information to enhance adaptive management [G7]
- 83. Maintain and update information management systems [G7]

84. Create new information and communicate with people to enhance their appreciation of SGCN [G8]
85. Create opportunities for people to appropriately enjoy SGCN-based recreation [G8]

3. Strategic Plan for Coldwater Resources Management in Southeast Minnesota

Document Title	Source	Date	URL or Address
Strategic Plan for Coldwater Resources Management in Southeast Minnesota: 2004-2015	Minnesota Department of Natural Resources, Division of Fisheries	Aug. 8, 2003	http://files.dnr.state.mn.us/fisheries/management/coldwaterstrategicplan_semn.pdf

Geographic Extent / Scope:

...coldwater resources and trout fisheries in southeast Minnesota.(p.ii) [...] Major rivers of the region include the Mississippi (which forms the eastern boundary), Root, Whitewater, Zumbro, and Cannon. [...] Today, southeast Minnesota has 788 miles of cold water in 181 streams (p.2)

Organizations / Agencies involved in plan creation:

[Minnesota Department of Natural Resources, Division of Fisheries.] The Division of Fisheries periodically holds public input meetings on a variety of topics. Five public input meetings (Winona, Frontenac, Rochester, Lanesboro, and St. Paul) were held in the spring of 2003 to gather input on the development of this strategic plan (Appendix B). Another forum used to receive angler input was the Southeast Minnesota Trout Advisory Group (SEMTAG), which consisted of representatives from trout angling groups, bait shop owners, sportsman's club representatives, and individuals. [...] Additionally, the Trout and Salmon Stamp Oversight Committee has been established to provide broad oversight of trout and salmon stamp expenditures. (p. 6)

Info on Planning Process:

This strategic plan will encompass the 12-year period from 2004 through 2015. Long-range plans will be developed and reviewed every 6 years to define the specific management actions required to achieve the goals in this strategic plan. Operational plans will be developed annually to implement and provide funding for these management actions. (p. ii)

Purpose of plan:

The purpose of this Strategic Plan is to identify key issues and concerns relative to coldwater resources and trout fisheries and to develop goals and strategies that will address these issues over the next 12 years. The intended audience for this plan includes internal and external clientele with an interest in southeast Minnesota's coldwater ecosystems and trout fisheries. (p.1)

ISSUES (p.1, except where noted otherwise)

1. meet public trust responsibilities of protecting and maintaining aquatic resources
2. promote the use of sound ecosystem management principles
3. provide diverse angling opportunities
4. increase the general public's appreciation and awareness of trout, trout habitat, and the influences of the watershed on aquatic resources

5. increasing human population in the region
6. changing agricultural practices
7. changing attitudes about recreational fisheries
8. identify educational opportunities that encourage the appreciation of coldwater resources among a broad spectrum of the population
9. [Changes in agriculture and increased rural residential development resulting in] increased runoff; reduced base flow; thermal pulses; and increased sedimentation, nutrient, and chemical inputs (p.3)
10. Climate change (p.3)

VISIONS

1. Provide for the protection, improvement, and restoration of coldwater aquatic habitat and fish communities so that this unique resource is available for future generations.
2. Provide diverse angling opportunities so that a broad range of experiences are available to anglers.
3. Increase communication efforts so that information is readily available to both constituents and fisheries professionals.

GOALS

1. Improve our ability to protect, improve, and restore riparian and in-stream habitat so that fish populations are healthy. [V1] (p. 10)
2. Increase and improve scientific investigations, monitoring, and evaluations so that management decisions are based on good biological and social information. [V1] (p. 10)
3. Support and use a watershed approach for trout management so that all coldwater resources are protected and improved and basin wide impacts to coldwater streams can be addressed. [V1] (p. 11)
4. Provide, maintain, and enhance diverse trout angling opportunities throughout southeast Minnesota so that trout management programs can meet the needs of as many anglers as possible. [V2] (p. 12)
5. Provide for angling access on as many streams in southeast Minnesota as possible so that anglers have a variety of locations and maximum opportunities to fish [V2] (p. 13)
6. Establish guidelines for the utilization of hatchery-reared trout so that additional angling opportunities are continued [V2] (p. 13)
7. Provide information to anglers and other stakeholders so that they are well informed about fisheries management and other coldwater resources in these streams. [V3] (p.14)
8. Increase efforts at standardizing and sharing information among fisheries professionals so that trout management decisions are based on sound biological and social information [V3] (p. 14)
9. Provide for efficient and healthy methods of communication and dialog among trout anglers, with other stakeholders, and with Fisheries staff so that issues can be discussed and resolved. [V3] (p. 15)

STRATEGIES

1. Coordinate with other DNR divisions, state agencies, local governments, and non-governmental organizations to strengthen environmental laws that protect and improve coldwater stream resources. [G1] (p. 10)

2. Continue environmental review responsibilities and encourage enforcement of existing regulations. [G1] (p. 10)
3. Work to increase the amount of critical habitat that is protected through fee title acquisition or other land protection options (e.g., conservation easements, land trusts). [G1] (p. 10)
4. Develop position statements regarding activities and projects that adversely impact coldwater stream resources. [G1] (p. 10)
5. Improve the ability of southeast Fisheries staff to assist landowners in decisions and activities concerning riparian management and fish populations. [G1] (p. 10)
6. Formalize Habitat Improvement (HI) guidelines to be followed on all DNR in-stream and riparian related projects, and in reviewing similar non-DNR projects. [G1] (p. 10)
7. Provide a balance between development of new projects and maintenance of old projects in the HI program. [G1] (p. 10)
8. Support a program to delineate the surface and subsurface spring catchment areas as a major step in protecting and managing the sources of cold water for southeast Minnesota trout streams. [G2] (pp.10-11)
9. Actively participate in efforts to develop a revised Stream Survey Manual that places more emphasis on measuring and monitoring stream geomorphology and key biotic indicators, e.g., Index of Biotic Integrity (IBI). [G2] (pp.10-11)
10. Establish continuous water monitoring stations, in partnership with other agencies and interested citizens, to increase our understanding of watershed impacts on water quality, fish populations, and other stream biota. [G2] (pp.10-11)
11. Conduct research designed to better understand coldwater fishes, primarily trout and their habitat requirements, and increase efforts to better understand the social and abiotic factors affecting southeast Minnesota coldwater resources. [G2] (pp.10-11)
12. Improve evaluations of stream management activities and fish populations. [G2] (pp.10-11)
13. Integrate coldwater resource management by establishing partnerships and sharing information with other natural resource and land management agencies having administrative responsibility in southeast Minnesota including Natural Resource Conservation Service (NRCS), Board of Water and Soil Resources (BWSR), County Water Planning, Department of Agriculture, local units of government, and non-governmental organizations. [G3] (p. 11)
14. Coordinate and develop partnerships with other interested parties listed in Strategy 1.1.1 to develop a central stream and watershed database/Geographical Information System (GIS) that incorporates water quality, land use, and biological information. [G3] (p. 11)
15. Continue to provide staff time to maintain a Fisheries presence in watershed issues, track State and Federal Farm Bill Legislation, provide private lands management assistance, and advocate for management at the watershed scale to improve trout populations and aquatic habitat. [G3] (p. 11)
16. Use a defined set of regulations (e.g., tiered regulations or “tool box” approach) on selected streams where data shows the best potential to increase numbers of medium (12-16 inch) brown trout and large (16 inch and greater) brown trout and where there is public support. [G4] (p. 12-13)
17. Continue to explore the expansion of winter trout angling opportunities to meet demand. [G4] (p. 12-13)
18. Develop management strategies for non-designated trout waters. [G4] (p. 12-13)

19. Restore wild brook trout populations in streams with aquatic habitat capable of supporting brook trout and evaluate the success of current experimental regulations. [G4] (p. 12-13)
20. Identify, acquire, and develop easy access fishing areas designed for families and individuals with limited mobility and improve information on the availability of these areas. [G4] (p. 12-13)
21. Conduct standardized angler preference, attitude, and satisfaction surveys regarding trout fishing in southeast Minnesota. [G4] (p. 12-13)
22. Purchase as many angling easements as possible, and work with constituent groups to advocate for additional dollars. [G5] (p. 13)
23. Develop an angler walk-in program with landowners who are not interested in selling easements but are willing to allow angling. [G5] (p. 13)
24. Continue to evaluate catchable trout stocking, and revise stocking guidelines so that stocking does not jeopardize wild trout management but, at the same time, provides flexibility in stocking decisions. [G6] (p. 13)
25. Continue to evaluate guidelines for brown trout fingerling maintenance stocking, and revise if necessary. [G6] (p. 13)
26. Maintain a source of hatchery produced trout to provide put-and-take angling opportunities in appropriate waters. [G6] (p. 13)
27. Improve our knowledge of trout genetics, and use that information in reestablishing trout fisheries. [G6] (p. 13)
28. Periodically revise and update the southeast Minnesota trout stream map and easement brochure to include new information such as stream management reaches, easy access areas, and access roads. [G7] (p. 14)
29. Provide continual updates of stream management issues and stream survey reports to constituents, and develop new methods of providing this information. [G7] (p. 14)
30. Increase the use of trout hatcheries, local State parks, County fairs, and MinnAqua for disseminating coldwater stream information. [G7] (p. 14)
31. Encourage programs that introduce youth to trout angling, and use trout angling as an opportunity to educate them about southeast Minnesota coldwater resources. [G7] (p. 14)
32. Explore new ways of promoting or marketing the work that the Division does on trout streams in the southeast. [G7] (p. 14)
33. Improve the quality and location of signs as a means of communication. [G7] (p. 14)
34. Increase efforts in developing data management systems and GIS applications that improve networking and information availability. [G8] (p.14)
35. Explore opportunities to reorganize and improve the efficiency and effectiveness of managing southeast Minnesota coldwater resources. [G8] (p.14)
36. Continuously improve a skilled, knowledgeable, and productive workforce in the Division of Fisheries. [G8] (p.14)
37. Develop additional methods for getting input from anglers. [G9] (p.15)
38. Continue to work with anglers and angler groups to help resolve conflicts among anglers and other stakeholders. [G9] (p.15)

4. Land Asset Management Plan – Lake City

Document Title	Source	Date	URL or Address
Land Asset Management Plan for Lake City Forestry Area (334)	Minnesota Department of Natural Resources, Division of Forestry	Nov. 6, 2008	Minnesota Dept. of Natural Resources Division of Forestry 500 Lafayette Rd. St. Paul, MN 55155-4040

Geographic Extent / Scope:

The scope of this document addresses all land asset management activities for the Minnesota Department of Natural Resources, Lake City Forestry Area. [...] The Lake City Area consists of:

- 28,480 Acres of Forestry Administered Land
- 1 State Forest, the R.J. Dorer Memorial Hardwood State Forest
- Five Percent of the State Forest Acres are state owned (p. 2)

Organizations / Agencies involved in plan creation:

[Lake City area staff of the Minnesota Department of Natural Resources Division of Forestry]

Info on Planning Process:

This Area Asset Management Plan has been developed following the guidelines of the Strategic Plan for the Division of Forestry Lands Program. [...] This plan is part of a statewide summary plan of combined area plans used to address inter-area and regional transactions and develop statewide priorities and funding requests. The statewide summary plan includes procedures to address unplanned-for land transaction opportunities. (p. 2) [The assessment took place in 2007].

Purpose of plan:

This plan was written to provide the Citizens of Minnesota with an awareness of the purpose of land asset management as it relates to the development and management of the forest. Other intended readers include DNR personnel, the Minnesota Legislature, local and federal government bodies, forest industry and land trust nonprofit organizations. (p. 2)

ISSUES

[No specific issues were present; however, the plan listed six land asset management activities addressed by the document.]

1. Identification of land parcels to be retained and managed by the Division of Forestry.
2. Identification of land parcels to be acquired (either as access easements or in fee title from willing sellers to improve forest resources management.
3. Identification of forestry administered land parcels that do not meet the mission of the Division of Forestry and should be considered for administrative change.
4. Identification of significant land exchange opportunities.
5. Detailing other land related activities that are needed in order to provide access, resource protection, reduce conflicting uses and improve forest management efficiencies.
6. Outlining funding needs to complete lands transactions. (p. 2)

VISIONS

1. ...to achieve the optimum pattern of forest land ownership for the management of forest resources designed to best serve the needs of Minnesota's citizens while maximizing long-term resource and economic benefits through efficient resource management, land acquisition, exchange, sale, leasing, permit and other activities. (p. 2)

GOALS

1. **Acquisition Guidelines** - Acquire Private lands in the following priorities that provide for state forest land:

- **access**
 - a. Land that provides public access to Division of Forestry administered land where there currently is none
 - b. Land that creates a link to public access to Division of Forestry administered land where there currently is none
 - c. Land that provides an alternate public access to Division of Forestry administered land
- **consolidation**
 - a. Land that is landlocked inside a large contiguous block of Division of Forestry administered land
 - b. Land that reduces state /private boundaries
- **resource protection.**
 - a. Productive forest land
 - b. Land that could be developed causing land-use conflicts with adjacent Division of Forestry administered land (p. 3)

2. **Disposal Guidelines** - Scattered parcels are to be disposed of through exchange, transfer or sale. They are smaller parcels, separated from other parcels, with a low area to perimeter ratio, and poor or no public access. They may also have low productivity and/or conflicting adjacent uses. [Specific definitions are provided for what constitutes a scattered parcel.](p. 3)

STRATEGIES

Land Acquisition (p. 4)

1. **Obtain access** to state forest land where it currently does not exist either through fee title acquisition of lands or through access easements across non-state lands of willing participants. [...] 4 parcels, consisting of 159 acres.
2. **Consolidate ownership** of state forest land through fee title acquisition from willing sellers of non-state lands surrounded by state forest land, especially where land use conflict potential exists. [...] 43 parcels, consisting of 1667 acres.
3. **Obtain conservation easements** from willing participants on non-state lands adjacent to state forest land, where development pressure exists that would create land use conflict hindering the ability to effectively manage the forest resource. [...] [acquire 179 parcels, consisting of 5328 acres to protect forests from development pressure]; of this, 131 parcels consisting of 3433 acres will be pursued for conservation easements.

Exchanges (p. 5)

4. **Obtain access** through exchange of excess state forestry land for non-state land that provides access to state forest land where it currently does not exist.

5. **Consolidate ownership** through exchange of excess state forestry land for non-state land surrounded by state forest land, especially where land use conflict potential exists. Special emphasis will be given to exchanging scattered parcels of state forestry lands within county, federal or other agency lands with scattered parcels of those agencies within otherwise consolidated state forestry lands. [...] 14 parcels, 241 acres to Wildlife for at least 2 parcels, 79 acres to improve management; 5 parcels, 131 acres to EcoServices.
6. **Favor exchanges** with willing participants over acquisitions to reduce acquisition costs. [...] 10 parcels, consisting of 59 acres available for other exchanges.

Transfers (p. 5)

7. **Consolidate ownership** through transfer of administrative control to other divisions or state agencies where management objectives are better suited to that agency.
8. **Transfer Exchanges** - Special emphasis will be given to transferring scattered parcels of state forestry lands within or other Department management units in exchange for transferring scattered parcels of that division to Forestry that are within otherwise consolidated state forestry lands.

Sales (p. 6)

9. Offer Forestry Administered land for sale that do not meet the goals and objectives of the Department or other government unit, and: a.) does not provide an opportunity for exchange, and b.) provides a better return to the School Trust Fund than through management, or c.) provides funding for future acquisitions. The Lake City Area has no lands recommended to be sold.

Land Encumbrances (p. 6)

[A variety of other land issues are listed, such as Leases, Trespass, and Noxious Weed Control, with explanations of how they are dealt with.]

5. Land Asset Management Plan – Rochester

Document Title	Source	Date	URL or Address
Land Asset Management Plan for Rochester Forestry Area (341)	Minnesota Department of Natural Resources, Division of Forestry	Nov. 6, 2008	Minnesota Dept. of Natural Resources Division of Forestry 500 Lafayette Rd. St. Paul, MN 55155-4040

Geographic Extent / Scope:

The scope of this document addresses all land asset management activities for the Minnesota Department of Natural Resources, Rochester Forestry Area. [...] The Rochester Area consists of:

- 45,769 Acres of Forestry Administered Land
- 1 State Forest, the R.J. Dorer Memorial Hardwood State Forest
- Five Percent of the State Forest Acres are state owned (p. 2)

Organizations / Agencies involved in plan creation:

[Rochester area staff of the Minnesota Department of Natural Resources Division of Forestry]

Info on Planning Process:

This Area Asset Management Plan has been developed following the guidelines of the Strategic Plan for the Division of Forestry Lands Program. [...] This plan is part of a statewide summary plan of combined area plans used to address inter-area and regional transactions and develop statewide priorities and funding requests. The statewide summary plan includes procedures to address unplanned-for land transaction opportunities. (p. 2) [The assessment took place in 2007].

Purpose of plan:

This plan was written to provide the Citizens of Minnesota with an awareness of the purpose of land asset management as it relates to the development and management of the forest. Other intended readers include DNR personnel, the Minnesota Legislature, local and federal government bodies, forest industry and land trust nonprofit organizations. (p. 2)

ISSUES

[No specific issues were present; however, the plan listed six land asset management activities addressed by the document.]

1. Identification of land parcels to be retained and managed by the Division of Forestry.
2. Identification of land parcels to be acquired (either as access easements or in fee title from willing sellers to improve forest resources management.
3. Identification of forestry administered land parcels that do not meet the mission of the Division of Forestry and should be considered for administrative change.
4. Identification of significant land exchange opportunities.
5. Detailing other land related activities that are needed in order to provide access, resource protection, reduce conflicting uses and improve forest management efficiencies.
6. Outlining funding needs to complete lands transactions. (p. 2)

VISIONS

1. ...to achieve the optimum pattern of forest land ownership for the management of forest resources designed to best serve the needs of Minnesota's citizens while maximizing long-term resource and economic benefits through efficient resource management, land acquisition, exchange, sale, leasing, permit and other activities. (p. 2)

GOALS

1. **Acquisition Guidelines** - Acquire Private lands in the following priorities that provide for state forest land:
 - **access**
 - a. Land that provides public access to Division of Forestry administered land where there currently is none
 - b. Land that creates a link to public access to Division of Forestry administered land where there currently is none
 - c. Land that provides an alternate public access to Division of Forestry administered land
 - **consolidation**
 - a. Land that is landlocked inside a large contiguous block of Division of Forestry administered land
 - b. Land that reduces state /private boundaries

- **resource protection.**
 - a. Productive forest land
 - b. Land that could be developed causing land-use conflicts with adjacent Division of Forestry administered land (p. 3)

2. **Disposal Guidelines** - Scattered parcels are to be disposed of through exchange, transfer or sale. They are smaller parcels, separated from other parcels, with a low area to perimeter ratio, and poor or no public access. They may also have low productivity and/or conflicting adjacent uses. [Specific definitions are provided for what constitutes a scattered parcel.](p. 3)

STRATEGIES

Land Acquisition (p. 4)

1. **Obtain access** to state forest land where it currently does not exist either through fee title acquisition of lands or through access easements across non-state lands of willing participants. [...] 168 parcels, consisting of 6,669 acres.
2. **Consolidate ownership** of state forest land through fee title acquisition from willing sellers of non-state lands surrounded by state forest land, especially where land use conflict potential exists. [...] 80 parcels, consisting of 3,173 acres.
3. **Obtain conservation easements** from willing participants on non-state lands adjacent to state forest land, where development pressure exists that would create land use conflict hindering the ability to effectively manage the forest resource [Acquire 20 parcels, consisting of 790 acres to protect forests from development pressure].

Exchanges (p. 5)

4. **Obtain access** through exchange of excess state forestry land for non-state land that provides access to state forest land where it currently does not exist. [...] 18 parcels, consisting of 727 acres.
5. **Consolidate ownership** through exchange of excess state forestry land for non-state land surrounded by state forest land, especially where land use conflict potential exists. Special emphasis will be given to exchanging scattered parcels of state forestry lands within county, federal or other agency lands with scattered parcels of those agencies within otherwise consolidated state forestry lands. [...] 71 parcels, consisting of 2816 acres, all with private landowners; an additional 6 parcels, consisting of 237 acres of DNR Wildlife land would be exchanged for 4 forestry parcels, consisting of 162 acres; an additional 9 parcels, consisting of 354 acres of MNDOT land would be exchanged for up to 8 forestry parcels, consisting of 316 acres.
6. **Favor exchanges** with willing participants over acquisitions to reduce acquisition costs. [...].

Transfers (p. 5)

7. **Consolidate ownership** through transfer of administrative control to other divisions or state agencies where management objectives are better suited to that agency. [...]The Rochester Area recommends that 4 parcels, consisting of 158 acres be transferred to Parks with an additional forestry parcel of 39 acres available for an exchange.
8. **Transfer Exchanges** - Special emphasis will be given to transferring scattered parcels of state forestry lands within or other Department management units in exchange for

transferring scattered parcels of that division to Forestry that are within otherwise consolidated state forestry lands.

Sales (p. 6)

9. Offer Forestry Administered land for sale that do not meet the goals and objectives of the Department or other government unit, and: a.) does not provide an opportunity for exchange, and b.) provides a better return to the School Trust Fund than through management, or c.) provides funding for future acquisitions. The Rochester Area recommends that 1 parcel, consisting of 41 acres of acquired land be sold.

6. High Biodiversity Area Management Plan: Collischan Bottoms

Document Title	Source	Date	URL or Address
ADDENDUM: High Biodiversity Area Management Plan, Collischan Bottoms (Vermillion Bottoms and Lower Cannon River Area)	Minnesota Department of Natural Resources, Division of Forestry	Dec. 2002	http://files.dnr.state.mn.us/forestry/subsection/blufflands/collischanbottoms_final.pdf

Geographic Extent / Scope:

“An Evaluation of the Ecological Significance of The Vermillion Bottoms and Lower Cannon River Area” (Dunevitz, 2000) describes an area between Red Wing and Hastings that covers 37,717 acres; parts of six townships, two counties and two DNR Regions. Of that gross acreage, 9,451 are currently in State Ownership and managed by three different DNR divisions. Of the 9,451 acres, 2,836 are currently under custodial control of the DNR Division of Forestry. (p.1)

Organizations / Agencies involved in plan creation:

Minnesota Department of Natural Resources, Division of Forestry

Info on Planning Process:

During the development of the Blufflands/ Rochester Plateau Subsection Forest Resource Management Plan (SFRMP), DNR forest stands within the high biodiversity areas were reserved from treatment pending completion of area-specific management plans. This is the first of such area-specific management plans and is presented as an addendum to Blufflands/Rochester Plateau SFRMP. [Scheduled for revision after 7 years or sooner if necessary.] (p.1)

Purpose of plan:

This plan will guide management decisions and practices within the Vermillion Bottoms and Lower Cannon River Area, one of 13 areas of high biodiversity identified within the Blufflands and Rochester Plateau subsections, locally known as the Collischan Bottoms. (p.1) [...] Recommendations will only be made for state-owned land at this time. (p.2)

ISSUES

1. Biodiversity protection (p.4)
2. Timber management (p.4)

3. Recreation (p.4)
4. Wildlife management (p.4)
5. Reed Canary grass (p.7)/[invasive species]
6. ...the altered flood regime has resulted in little regeneration (p.7)
7. Steep slopes [are inoperable for harvest] (p. 9, 10)

VISIONS

1. ...to perpetuate the native plant communities that support the unique flora and fauna that make the areas exceptional. (p.2)
2. ...to maintain and regenerate native plant communities and the plant and animal species that reside in the area using processes that mimic the disturbances that helped to establish and maintain these communities. (p.4)
3. ...biodiversity protection, timber management, recreation, and wildlife management will all be included in management decisions to achieve this goal. (p. 4)

GOALS

1. ...have timber age classes spatially distributed to provide habitat both now and in the future for flora and fauna that have adapted to survive in this area (p.4) [V2]
2. [Determine] the size of disturbance or harvest that is required to maintain habitat for interior bird species (p.5)
3. Careful planning needs to be undertaken to address the native plant community concerns while providing the needed habitat for the species that depend on this area. [Lowland Hardwoods and Cottonwood] (p. 6)
4. Because of the high component of oak present in central hardwood stands, they will be managed to increase the oak component wherever possible. If conversion to a northern hardwood type is inevitable, oak will be retained as a component in the stand as long as possible. [Oak and Central Hardwood Stands] (p. 8)
5. ...maintain the maple basswood plant communities while retaining a diverse shrub layer and maintaining or increasing rare plants in the herbaceous layer. [Northern Hardwoods] (p. 9)

STRATEGIES

Lowland Hardwoods; Cottonwood (pp.6-7) [G3]

1. Winter logging will be done so as not to disturb turtles during their nesting and foraging period.
2. Sites where seedling survival is decimated by flooding will need to be replanted until the area is successfully regenerated.
3. Direct seeding also can play a role in forest regeneration. Silver Maple and Cottonwood seed can be gathered in the spring and broadcast on silt left as soon as flood-waters recede.
4. The 67 stands recommended for treatment in the SFRMP process will be revisited and will be combined where necessary to achieve a stand size that meets the acreage requirement determined to be crucial to interior bird species.
5. All areas harvested will be intensively treated to assure they are adequately regenerated. This will require regeneration surveys at least annually.
6. Types harvested in past years will also have regeneration surveys done to assure regeneration is adequate.

7. Areas where reed canary grass has invaded will be treated to control it and then planted or seeded to native species.

Oak And Central Hardwoods (pp. 8-9) [G4]

8. Areas that are more mesic, have well established maple regeneration, and grade into maple-basswood will be allowed to succeed to the maple-basswood community type.
9. Other areas that are drier, have invasive species problems, or are not regenerating to maple will be managed to retain oak using various silvicultural techniques.
10. Perpetuation of the [oak] cover type will require that areas be clearcut.
11. Only four stands were identified for harvest in these two types. [...]All will be examined for the possibility for harvest over the next seven years.
12. To achieve the goal of managing the Collischan area as an ecosystem rather than as a series of timber stands, some stands that were not selected during the SFRMP process may be added as additions to the planned cut list

Northern Hardwoods (pp.9-10) [G5]

13. Northern hardwood timber types are predominated by sugar maple and basswood, and are managed on an uneven age basis.
14. Research in maple-basswood plant communities in Northern Minnesota has indicated that logging in this community may increase the invasion of non-native species and impact some spring ephemeral plants. Research plots are being established in the West Indian Creek area to determine if this is the case in Southeastern Minnesota. This monitoring effort will study both long-term and short-term effects of logging on the understory of the maple-basswood plant community.
15. Management of northern hardwoods will be done on an ecosystem basis rather than a stand basis. Local resource managers will determine size of blocks that are most advantageous to the various species of flora and fauna that utilize the area as well as considering economies of scale for setting up timber sales.
16. They will also determine where sales should be spatially set up to maximize benefits of non-timber crops of the forest.
17. Most of the northern hardwood stands have been mentioned in the descriptions of other forest types and will be managed in conjunction with these types.

Walnut (p.10-11)

18. Walnut is managed on an individual tree basis.
19. Mark individual walnut trees for harvest and sell at annual Lake City Area timber auction.
20. Maintain an adequate stocking of Walnut.
21. Two other timber types in section 36, an oak type and an aspen type were also identified for harvest. These types should also be marked and sold along with the walnut.

Aspen (p. 11)

22. Aspen is managed on an even age basis.

7. High Biodiversity Area Management Plan: Partridge Creek

Document Title	Source	Date	URL or Address
ADDENDUM: High Biodiversity Area Management Plan, Partridge Creek	Minnesota Department of Natural Resources, Division of Forestry	Oct. 2005	http://files.dnr.state.mn.us/forestry/subsection/blufflands/sfrmp_Blufflands_Rochester_PartridgeCreek_addendum.pdf

Geographic Extent / Scope:

The Partridge Creek Area is located approximately eight miles southeast of Rochester, MN. It lies within the Blufflands ecological landscape area. It is made up of a block of state land within the Richard J. Dorer State Forest as well as privately owned property Partridge Creek runs through the middle of the area. [...] The MCBS proceeded to delineate two sets of boundaries for these sites. The broader boundary encompasses 846 acres and is referred to as the Project Area. [...] The Critical Habitat Zone boundary contains the core area of rare natural feature locations. The Critical Habitat Zone contains 118 acres, 94 of which are part of the State Forest. (p. 4)

Organizations / Agencies involved in plan creation:

Division directors for the DNR Divisions of Wildlife, Forestry, and Ecological Services determined that long-term management plans would be developed for the 13 designated high biodiversity sites. (p. 4)

Info on Planning Process:

This plan will be an addendum to the Blufflands Subsection Forest Resource Management Plan, which was completed by a Department of Natural Resources (DNR) interdisciplinary team in 2002. This plan, as well as the broader subsection plan, is to be reviewed and revised after seven years. (p. 4)

Purpose of plan:

...to provide a framework for forest management within the Partridge Creek Area. [...] The plan is for State-owned property only, however, some management recommendations in the plan may be appropriate for adjacent private lands as well. (p. 1)

ISSUES (p. 3-6)

1. Steep slopes
2. Poor access
3. Low timber value
4. Endangered, threatened, and special concern plant species
5. Old growth
6. Non-native species
7. Traffic/OHV use (p. 7)

VISIONS

1. ...management of these sites should focus on the site as a whole, employ practices that perpetuate endangered, threatened, or special concern species, and native plant

communities while following the mandates of forestry or wildlife administered lands. (p. 1)

GOALS

1. Total protection of the old growth stands and that portion of the SMZ where endangered and threatened plant species occur should help to protect the species located there in the short term.
2. ...maintain the maple basswood native plant community while retaining a diverse shrub layer and maintaining or increasing the diversity of native plants in the herbaceous layer. (p. 3)
3. ... maintain a quality lowland hardwood community while protecting the groundwater seepage springs and herbaceous ground cover. (p. 4)
4. The management focus in [the Lowland Hardwood Forest] will be protection of ETS species locations, protection of springs, and adherence to riparian area and SMZ zone guidelines. Any timber harvesting that is done should protect the plant community and remove non-natives. (p. 4)
5. Any timber harvesting that is done [in the Lowland Hardwood Forest] should protect the plant community and remove non-natives. (p. 4)
6. Management practices, where possible, should be used to retain [mesic oak forests] as oak types. In areas where maple-basswood succession is inevitable, the stands will be allowed to succeed to maple basswood. (p. 4)
7. ...Encourage regeneration of the oak community through controlled burning and carefully planned logging to open up the community. [Dry Oak Forest] (p. 5)
8. Eliminating non-native species is also a high priority. [Dry Oak Forest] (p. 5)
9. Management should ensure the perpetuation of the white pine-hardwood forest. Scarification and release would be practices to utilize to enhance survival, growth, and regeneration of white pine. (pp. 5-6)
10. Perpetuation of the fairly open oak canopy through carefully implemented prescribed burns and/or through timber harvesting. [Mixed Oak Woodland] (p. 6)
11. ...maintain or increase its acreage to benefit various wildlife and non-game wildlife species. [Aspen] (p. 6)
12. Enhance game and non-game wildlife habitat (p. 7)
13. Provide sustainable recreation opportunities (p. 7)
14. Update CSA and MCBS data (p. 7)
15. Acquisition of key private land parcels (p. 8)

STRATEGIES

Maple-Basswood

1. No management activities are planned for [old growth] stands. (p. 3) [G2]
2. Except for [one type with poor access], the stands will be harvested within the 7-year period of time covered by this SFRMP plan addendum. Best Management Practices will be followed. (p. 3) [G1]

Lowland Hardwood Forest

3. ...the average size and density of the trees appears to be somewhat less than what the inventory would indicate. For this reason as well as limited access and the management

constraints due to the adjacent old growth stands, no management activity is planned in this cover type during the 7-year planning period (p. 4) [G3-5]

Mesic Oak Forest

4. ...stands [that have met the selection criteria] will be harvested during the 7 year period covered by this SFRMP plan addendum. [...] Best Management Practices will be followed. (p. 5) [G6]
5. Monitoring of the effects of various harvesting techniques will be ongoing at Caledonia Oaks in Houston County. (p. 5) [G6]
6. ...no management activities will be implemented [in an old growth type]. Access problems preclude management activities in [another type] and no management needs have been identified for [another stand]. (p. 5) [G6]

Dry Oak Forest

7. No management is planned for [a type] because of its status as an old growth type. (p. 5) [G7]
8. [One] type will be harvested in the next seven years using Best Management Practices. (p. 5) [G7]

White Pine-Hardwood Forest

9. Release and scarification activities to enhance white pine survival and regeneration will be implemented in [one type] when harvesting activities, as noted above, take place. (p. 6) [G9]
10. No management will occur in [one cover type] because of its status as an old growth type. (p. 6) [G9]
11. No management activities are planned for [one type] during the 7- year plan period because of limited access to this area. (p. 6) [G9]

Mixed Oak Woodland

12. This area has poor access because of steep slopes and adjacent private property. No management activities are planned in this cover type in the 7-year period covered by this plan. [G10]

Aspen

13. ...harvesting of aspen clones [in two types] should only be done in conjunction with a timber harvest of the surrounding stand. (p. 6) [G11]
14. Access problems with [one type] will prevent aspen cutting during the 7 year plan period. (p. 6) [G11]

Enhance game and non-game wildlife habitat (p. 7) [G12]

15. A stream survey by DNR Fisheries will be requested for Partridge Creek in the seven year planning period.
16. Changing land use patterns in the area could influence stream quality. Proven practices that enhance wildlife habitat will be incorporated whenever possible.
17. Select harvests should not create any additional forest edge areas.

Provide sustainable recreation opportunities (p. 7) [G13]

18. Additional signs/fencing will be put up to delineate boundary lines and permitted activities.
19. Additional enforcement activity will be needed to get better compliance with OHV regulations.

Update CSA and MCBS data (p. 7) [G14]

20. CSA alterations will be completed as management activities are planned or completed, after regeneration checks, etc.

Acquisition of key private land parcels (p. 8) [G15]

21. There is a significant amount of private land within the Partridge Creek Area and some private land in the Critical Habitat Zone as well. It would make sense to try to acquire this parcel to add to the State Forest system.
22. Other land purchases in the Partridge Creek Area that would allow DNR - Forestry to square off boundaries, add management efficiencies, and protect riparian areas will be pursued.
23. Acquisition of lands further up the Partridge Creek watershed would enhance stream protection. Partnering in acquisition efforts with other DNR divisions, other government agencies, and private organizations may be necessary.

8. High Biodiversity Area Management Plan: Pine-Hemingway Creek

Document Title	Source	Date	URL or Address
ADDENDUM: High Biodiversity Area Management Plan, Pine-Hemingway Creek	Minnesota Department of Natural Resources, Division of Forestry	Oct. 2009	http://files.dnr.state.mn.us/forestry/subsection/blufflands/sfrmp_pine_hemingwayCreek_final.pdf

Geographic Extent / Scope:

The Pine-Hemingway Creek Area is approximately 14 miles south of Lewiston, MN. It lies within the Blufflands subsection ecological landscape area. [...]The MCBS delineated two boundaries for this property. The broader boundary encompasses what is referred to as a Project Area. The other boundary is identified as the Critical Habitat Zone, and contains the core area of rare natural feature locations. The Pine-Hemingway Creek Critical Habitat Zone is made up of 2,452 acres, of which 871 acres, or 35%, are State Forest land. The majority of the acreage within the Zone is private land. This plan is primarily intended for use within the Critical Habitat Zone. (p. 3-4)

Organizations / Agencies involved in plan creation:

Division directors for the DNR Divisions of Fish and Wildlife, Forestry, and Ecological Resources determined that long-term management plans would be developed for the 13 identified high biodiversity areas. (p. 3)

Info on Planning Process:

This plan is intended to be used in conjunction with the Blufflands/ Rochester Plateau Subsection Forest Resource Management Plan (SFRMP) that was completed by the DNR in 2002, and will be revisited every seven-years as part of an adaptive management process. (p. 3)

Purpose of plan:

This plan will guide management decisions and practices on state-owned land in the Pine-Hemingway Creek area. [...] The plan is for state-owned property only, however, some management recommendations in the plan may be appropriate for adjacent private lands as well. (p. 3)

ISSUES

1. Concentration of rare features (p. 4)
2. Biodiversity(p. 4)/biodiversity protection (p.5)
3. Land conversion to agriculture or residential uses (p. 4)
4. Livestock grazing (p. 4)
5. Invasive species such as reed canary grass or buckthorn (p. 4)
6. Logging which results in excessive site disturbance (p. 4)
7. Timber management (p.5)
8. Understory species management (p.5)
9. Recreation (p.5)
10. Game and non-game wildlife species management (p.5)
11. Trout stream management (p.5)
12. Steep slopes (p. 8)
13. Poor access (p. 8)
14. Low timber value (p. 8)
15. [Conflict with neighboring private land]: Land clearing, agricultural management practices, cattle grazing, unmanaged logging, and road and housing construction are examples of practices, which may conflict with [...] maintaining or increasing the uncommon species and the native plant communities, which support them. (p. 11)

VISIONS

1. ...management of these sites should focus on the site as a whole, employ practices that perpetuate endangered, threatened, and special concern species and native plant communities while following the mandates of forestry or wildlife administered lands. (p. 3)
2. ...to manage and enhance native plant communities and the plant and animal species that reside in this area using processes that mimic the disturbances processes that helped to establish and maintain these communities. (p. 5)
3. ...biodiversity protection, timber management, understory species management, recreation, game and non-game wildlife species management and trout stream management will all be considered when making management decisions for this property. (p. 5)

GOALS

1. ...to maintain the maple-basswood forest native plant community while retaining a diverse shrub layer and maintaining or increasing the diversity of native plants in the herbaceous layer. This will help maintain or improve habitat for the 12 state-listed rare plant species and the three state-listed rare bird species that occur in these forests in this site. (p. 6)
2. ...to maintain a quality lowland hardwood community while protecting the groundwater seepage springs and herbaceous ground cover. (p. 7)

3. ...protection of ETS species locations, including the three special concern bird species, pickerel frogs, and the four state-listed rare plant species [Lowland Hardwood Forest] (p. 7)
4. ...protection of springs, and adherence to riparian management zone guidelines. [Lowland Hardwood Forest] (p. 7)
5. Any timber harvesting that is done should protect the plant community and remove non-natives. [Lowland Hardwood Forest] (p. 7)
6. As mesic oak forest is designated as an S2 native plant community, it should be actively managed to ensure its perpetuation as well as the rare species that occur in them. (p. 7)
7. Management practices where possible, should be used to retain these as oak types. [Mesic Oak Forest] (p. 7)
8. In areas where maple basswood succession is inevitable, the stands will be allowed to succeed to maple-basswood. [Mesic Oak Forest] (p. 7)
9. encourage regeneration of the oak community through controlled burning and carefully planned logging to open up the community. [dry oak forest] (p. 8)
10. Eliminating non-native species is also a high priority [in dry oak forests]. (p. 8)
11. Management should ensure the perpetuation of these natural [northern hardwood] communities and associated rare species. (p. 9)
12. Stands that comprise this type will be managed for the tree species to which they have been planted (p. 9)
13. The goal is to maintain these unique communities in an undisturbed condition and provide habitat for the rare plants and animals that occur in them. [Algific Talus Slope] (p. 9)
14. Enhance Wildlife Habitat (p. 10)
15. Recreation (p. 10)
16. Improve Forest Inventory Data and Management Practices (p. 10)
17. Acquisition of Private Lands (p. 10)

STRATEGIES

Maple-Basswood Forest (Southeast Section) (p. 6) [G1]

1. No management activities are planned for [two old growth] stands.
2. Where rare elements are found in stands scheduled for harvest some or all of the following actions will be taken to remediate the proposed action.
 - a. Buffering and avoiding heavy cutting or skidding in the vicinity of the known locations of rare plants will be the main methods.
 - b. ...timber sales preparation and specifications, monitoring, and evaluation will be guided by additional direction provided by the division /section directors of DNR Forestry, Wildlife, and Ecological Services

Lowland Hardwood Forest (p. 7) [G2-4]

3. ...due to concerns about potential logging impacts to rare species and the spread of reed canary grass and other invasive species, no management activities are planned for [three] stands during the current planning period.

Mesic Oak Forest (p. 7) [G5-8]

4. ...[one stand] has met the stand selection criteria for harvest. This stand will be harvested during the current planning period.

Dry Oak Forest (p. 8) [G9-10]

5. No management is planned in [one stand] since it is designated DNR old growth.
6. Only [one stand] met the harvest criteria and will be examined for harvest during the current planning period and with the long-term objective for the plant community as a guide.

Northern Hardwood – Conifer and White Pine-Hardwood Forest (p. 9) [G11]

7. [There is only one stand on state land and it] has been designated as DNR old growth. As such, no management activities are planned for this stand.

Disturbed Woods (p. 9) [G12]

8. Manage stands in this type for timber production and wildlife habitat.
9. A portion of [one stand] is proposed to [be] clear-cut harvested and regenerated to aspen-birch. The remainder [...] is proposed to be partial cut.

Algific Talus Slope (p. 9) [G13]

10. Prior to any activity in adjacent forest types, the regional plant ecologist will be consulted to clearly define these areas. No activities are planned for the life of this plan. (p. 10)

Additional Management Goals

11. Any planned work in riparian types will be done after consultation with the Area Fisheries staff. Input from the Area Wildlife will be obtained relative to the design of timber sales and forest management activities. (p. 10) [G14]
12. Signing and fencing to prevent trespassing onto adjacent private land is an ongoing activity. (p. 10) [G15]
13. Additional enforcement activity will be needed to get better compliance with OHV regulations. (p. 10) [G15]
14. Inventory alterations will be completed as management activities are completed, after regeneration checks, and at intervals as the stands age and their information needs updating. (p. 10) [G16]
15. Land acquisition that consolidates blocks of this unit or which buffer rare features or old growth stands or riparian areas or which improve public or management access should be a high priority. (p. 11) [G17]
16. Other means of protection or of improving access such as conservation or access easements should be considered where fee title acquisition is not possible. (p. 11) [G17]
17. Partnering in acquisition efforts with other DNR divisions, other government agencies, and private organizations may be necessary. (p. 11) [G17]

9. High Biodiversity Area Management Plan: West Indian Creek

Document Title	Source	Date	URL or Address
ADDENDUM: High Biodiversity Area Management Plan, West Indian Creek	Minnesota Department of Natural Resources, Division of Forestry	Dec. 2002	http://files.dnr.state.mn.us/forestry/subsection/blufflands/sfrmp_Blufflands_Roc

			hesterPlateau %20WIndianCreek_addendum.pdf
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Geographic Extent / Scope:

The Upper West Indian Creek Valley proposed project boundary consists of 950 acres of which 315 acres are Forestry acquired land. Within the overall project boundary, DNR staff have identified a “critical habitat zone” of 460 acres of which 260 are state forest land. (p. 4)

Organizations / Agencies involved in plan creation:

The resource managers who work in and manage the area developed the management plan for this area cooperatively. (p. 4)

Info on Planning Process:

During the development of the Blufflands/ Rochester Plateau Subsection Forest Resource Management Plan (SFRMP), DNR forest stands within the high biodiversity areas were reserved from treatment pending completion of area-specific management plans. This is the second of such area-specific management plans and is presented as an addendum to Blufflands/Rochester Plateau SFRMP. SFRMP plans are scheduled for revision every seven years. It is expected that management plans for high biodiversity areas will also be revisited every seven years, or sooner if need be, as part of an adaptive management process. [...]It will be an adaptive management plan. (p. 4)

Purpose of plan:

This plan will guide management decisions and practices within the Upper West Indian Creek Valley. [...] Recommendations in this plan are written for state–owned land. Private landowners within the project boundary will be contacted and offered management assistance for their land if they desire it. (p. 4)

ISSUES

1. Designated trout stream [...] heavy angling pressure (p. 5)/ Trout stream management (p.6)
2. Large contiguous acreage of native plant communities (p. 5)
3. Quality of [native plant communities] (p. 5)
4. Presence of rare specialized habitats (p. 5)
5. Large concentration of rare plants and animals (p. 5)
6. Biodiversity protection (p.6)
7. Timber management (p.6)
8. Understory species management (p.6)
9. Recreation (p.6)
10. Game and non-game wildlife species management (p.6)
11. Steep slopes (p. 7)

VISIONS

1. ...to perpetuate the plant communities that support the unique flora and fauna that make these areas exceptional. (p. 4)
2. ...to maintain native plant communities and plant and animal species that reside in the area. This will be done using processes that mimic the disturbances that helped to establish and maintain these communities. (p. 6)

3. ...biodiversity protection, timber management, understory species management, recreation, game and non-game species management, and trout stream management will all be considered in management decisions to achieve this goal. (p.6)

GOALS

- To maintain the maple basswood cover type while retaining a diverse shrub layer and maintaining or increasing rare plants in the herbaceous layer (p. 7)
- To maintain a quality lowland hardwood type while protecting the groundwater seepage springs and herbaceous ground cover in addition to maintaining the minimal shrub layer. (p. 9)
- To maintain this sensitive natural area. [Mixed hardwood seepage spring] (p. 9)
- To maintain this unique area in an undisturbed condition. [Algific talus slope] (p. 10)
- To protect these [moist and dry] cliffs no management activities will occur on them. (p. 10)
- Manage, where possible, to retain these types as oak types. [oak forest and white pine-hardwood] (p. 12)
- In areas where white pine is present management will be done to protect and increase the white pine component. [oak forest and white pine-hardwood] (p. 12)
- In areas where maple-basswood succession is inevitable, the stands will be allowed to succeed. [oak forest and white pine-hardwood] (p. 12)
- Winter logging will be done to minimize ground disturbance. [oak forest and white pine-hardwood] (p. 12)
- Manage to encourage regeneration of oak savanna and oak woodland-brushland communities through use of understory treatments, fire and logging. [oak woodland – brushland] (p. 12)
- To maintain aspen stands for biological diversity in the area and to provide wildlife habitat. (p. 13)

STRATEGIES

Maple-basswood forest [G1]

1. Four stands of maple-basswood were identified as meeting the criteria for harvest over the next seven year period in the SFRMP process.
2. prior to setting up harvest in any of these stands, a team consisting of forestry, wildlife, non-game wildlife, fisheries, and the regional plant ecologist will walk through these stands to determine where harvest is feasible and how to proceed to protect the natural community as a whole. (p. 7)
3. [Two stands] show little disturbance and will not be logged during this seven year SFRMP. [Two more stands] show more recent disturbance and may be logged using partial harvest techniques. (p. 8)
4. The regional plant ecologist will set up permanent plots in all four of these types in spring 2002 and monitor populations of spring ephemerals annually. (p. 8)
5. Monitoring sites will be established in all four stands. [...]to help guide future management decisions. (p. 8)
6. Plots will also be instituted in the area of timber trespass to determine how spring ephemeral populations responded to that significant disturbance. (p. 8)

7. ...design skid trails to avoid damaging any sensitive species. Logging will be restricted to winter months to further reduce any impacts to the ground. (p. 8)
8. All maple basswood stands will be monitored for invasion of buckthorn or other non-native species. These will be removed if populations become too high. (p. 8)
9. Boxelder populations will also be monitored and the numbers will be reduced if they threaten to reduce the quality of this natural community. (p. 8)

Lowland hardwood forest (p. 9) [G2]

10. No harvesting activity will occur in the designated old growth area.
11. The remaining area will continue to be managed for forest biodiversity.
12. No harvesting is planned over the next seven years but timber stand improvement (TSI) may be done if needed to keep box elder populations at manageable levels.
13. Plots to monitor spring ephemerals should be set up in this type for future reference.

Mixed hardwood seepage spring (p. 9) [G3]

14. This area falls within the old growth lowland hardwood type and will have no management activities planned on it over the next seven years.

Algific talus slopes (p. 10) [G4]

15. Prior to any activity in adjacent forest types, the regional plant ecologist will be consulted to clearly define these areas.
16. No activities are planned in the next seven years.

Moist and Dry cliffs (p. 10) [G5]

17. When timber harvest occurs on adjacent stands, the local forester, wildlife manager, fisheries manager, non-game wildlife manager, and regional plant ecologist will meet on site to determine how close to the cliffs management may occur.

Oak forest (mesic subtype) and White pine-hardwood forest [G6-9]

18. As with the other hardwood plant communities, research from the DNR as well as other agencies will be used to determine the best management technique to achieve the desired natural community. (p. 11)
19. No oak stands were identified in the SFRMP process for harvesting over the next seven years. (p. 12)
20. The oak old growth stand should be re-evaluated. (p. 12)

Oak woodland-brushland [G10] (p. 12)

21. Manage to encourage restoration of oak savanna communities through the use of prescribed fire and/or understory treatments.
22. No stands were identified for treatment in the next seven years.
23. Burning may be done when staff and weather conditions permit.
24. Selective logging will be done in combination with better quality oak stands with the objective of restoring examples of the oak savanna natural community.

Aspen [G11] (p. 13)

25. [One stand] should be harvested within the next seven years.

26. Harvesting will be done to increase populations of mast trees.

10. High Biodiversity Area Management Plan: Whitewater North Fork Area

Document Title	Source	Date	URL or Address
ADDENDUM: High Biodiversity Area Management Plan, Whitewater North Fork Area	Minnesota Department of Natural Resources, Division of Forestry	Nov. 2004	http://files.dnr.state.mn.us/forestry/subsection/blufflands/sfrmp_Blufflands_RochesterPlateauWhitewaterNorthFork_addendum.pdf

Geographic Extent / Scope:

The Whitewater North Fork area includes the largest and most significant natural area in Olmsted County and is an important natural area in southeastern Minnesota. [...] The Whitewater North Fork area is one of four high biodiversity sites located within Whitewater WMA. Two boundaries delineate the areas of significance with this plan. The Critical Habitat Zone boundary denotes the core area of locations of rare natural features. This area encompasses 1,556 acres (1,161 acres of State Land). The majority of the lands in the critical zone are part of the Whitewater WMA. [...] The Project Boundary is 3,877 acres (2,324 acres of State Land). (p. 1-2)

Organizations / Agencies involved in plan creation:

Division directors for the DNR Divisions of Wildlife, Forestry, and Ecological Services determined that long-term management plans would be developed for the 13 identified high biodiversity areas. (p. 1)

Info on Planning Process:

This plan is intended to be used in conjunction with the Blufflands/ Rochester Plateau Subsection Forest Resource Management Plan (SFRMP) that was completed by the DNR in 2002, and will be revisited every 7-years as part of an adaptive management process. (p. 1)

Purpose of plan:

This plan will guide management decisions and practices on the Whitewater North Fork area. [...] The management philosophy for this area is based on a landscape level perspective of ecosystems and the species that use these ecosystems. [Recommendations in this plan are written for State-owned land. Private landowners within the project boundary will be contacted and offered management assistance for their land if they desire.] (p. 1)

ISSUES

1. Escalating development pressure in the surrounding landscape (p. 1)
2. Increasing fragmentation (p. 1)
3. Global change (p. 1)
4. Biodiversity enhancement (p. 2)
5. Game management for such species as wild turkeys, white-tailed deer, ruffed grouse, (p. 2)
6. Recreation (p. 2)

7. Steep slopes in this area result in sensitivity to altered drainage patterns that may result from certain management operations. (p. 2)
8. Erosion [from a nearby road] (p. 2)
9. Rare species and community types (p. 3)
10. Invasion of nonnative species such as buckthorn and honeysuckle. (p. 3)
11. Effects of past grazing [...] armed shrubs are frequent/dense understories of prickly ash and other native shrubs that follow grazing [in the oak woodland-brushland community] (p. 4)
12. Exotic species prevalent in [the floodplain forest/lowland hardwood] community include creeping charley (*Glechoma hederacea*) and reed canary grass (*Phalaris arundinacea*).
13. Blowdowns are a common fate for larger trees in stands on steep, talus-laden soils. [maple-basswood] (p. 5)

VISIONS

1. ...management of these sites should focus on the site as a whole, employ practices that perpetuate endangered, threatened, or special concern species, and native plant communities while following the mandates of forestry or wildlife administered lands. (p.1)
2. ...to maintain and regenerate native plant communities and the biodiversity of the area using processes that mimic the natural disturbances that helped to maintain and establish these communities. (p. 2)
3. This plan will meld the goals of biodiversity enhancement, game management for such species as wild turkeys, white-tailed deer, ruffed grouse, and recreation into an adaptive management process. (p. 2)

GOALS

1. ...maintain the mix of community types providing a variety of habitat for numerous rare species. (p. 3)
2. Any logging used in the management of these areas will be designed to mimic natural disturbance process and will be performed in a way that minimizes soil compaction and damage to the understory species. (p. 3)
3. Management will be performed using existing road and trail systems and the construction of new roads will be kept to a minimum. (p. 3)
4. Those areas with a preponderance of maple/basswood and northern hardwood regeneration will be allowed to succeed to maple/basswood forests. (p. 3) [oak forest]
5. Management techniques will be designed to mimic natural disturbances such as blow downs, disease, and fire. (p. 3) [oak forest]
6. Management in the mesic oak forest areas will be designed to minimize canopy loss and techniques such as group selection will be examined for their effectiveness. (p. 3) [oak forest]
7. Those stands that have a high component of oak and other shade intolerant regeneration [...] will be managed to augment the oak component for the benefit of numerous game and non-game species. (p. 3) [oak forest]
8. Management options [to combat invasive species] might include prescribed fire, timber harvest, supplemental planting of oak both pre- and post- harvest, and post-sale silvicultural treatment efforts. (p. 4) [oak forest]
9. Oak woodland-brushlands will be managed to encourage the maintenance of the oak woodland-brushland community or encourage regeneration of the savanna communities

- through controlled burning and, where feasible to open up canopies, carefully planned logging.
- 10a. Reduce [native] invasive shrubs [oak woodland-brushland] (p. 4)
 10. Areas that are threatened by invasion of non-natives will be managed to reduce the threat of these species. [oak woodland-brushland] (p. 4)
 11. ...maintain a diverse floodplain forest community type and to encourage the continued existence of the forest interior bird species that currently occupy these areas. [floodplain forest/lowland hardwood forest] (p. 5)
 12. Areas that are not threatened by reed canary grass and are regenerating the overstory species such as cottonwood and silver maple will be maintained with minimal management. [floodplain forest/lowland hardwood forest] (p. 5)
 13. Areas of floodplain forest that are dominated by reed canary grass will be managed to minimize this risk. [floodplain forest/lowland hardwood forest] (p. 5)
 14. Areas that are regenerating box elder as the major understory species will be managed to encourage the regeneration of overstory species such as cottonwood and silver maple and decrease the dominance of box elder. [floodplain forest/lowland hardwood forest] (p. 5)
 15. These areas will be managed to maintain the maple basswood forest community and the full canopy cover that is typical of this native plant community [maple-basswood] (p. 5)
 16. Harvest activity should limit canopy gap creation wherever possible and account for fill in by remaining crowns. [maple-basswood] (p. 5)
 17. Seasonal and equipment restrictions should be used to limit soil disturbance. [maple-basswood] (p. 5)
 18. Where nonnative species invasion is prevalent management action should be taken. [maple-basswood] (p. 5)
 19. ...maintain the White Pine-Hardwood Forest plant community. [white-pine hardwood] (p. 6)
 20. areas should be monitored for white pine regeneration. Those areas that exhibit white pine regeneration should be allowed to continue natural regeneration. Those areas outside the Old Growth stand that exhibit a lack of white pine regeneration should be managed to encourage white pine regeneration. [white-pine hardwood] (p. 6)
 21. Any management in this area should be conducted in a [manner] that is sensitive to the needs for the community as a whole. [white-pine hardwood] (p. 6)
 22. a collaborative effort by the Section of Wildlife, Division of Ecological Services, and the Division of Forestry to develop a management plan for the old growth stand should be considered. [white-pine hardwood] (p. 6)
 23. Maintain and protect the sensitive habitat of these areas. [Moderate cliffs/Algific Talus slopes] (p. 6)
 24. Avoid management activities that would threaten these areas. [Moderate cliffs/Algific Talus slopes] (p. 6)
 25. Include buffers between adjacent sites when management is implemented. [Moderate cliffs/Algific Talus slopes] (p. 6)
 26. Maintain and protect these habitats. [Dry cliffs] (p. 7)
 27. Avoid management activities that would threaten these areas. [Dry cliffs] (p. 7)
 28. ...some of the stands identified by the CSA database will be placed in a reserved and ERF status during the current and upcoming stand review process of the Blufflands/Rochester Plateau SFRMP. [summary] (p.7)

STRATEGIES

Oak forest (mesic and dry-mesic subtype) (p. 4) [G4-8]

1. [Two stands] were identified in the SFRMP process for harvesting over the next 7 years.
2. Because of the advancing age of the oak resource, further investigation and on-site fields visits may be necessary to better identify those additional stands of oak with the greatest probability of future regeneration
3. Management activities will be designed in cooperation with the Whitewater WMA Manager, Area Forester, Regional Ecologist, Non-game Specialist, and USFS investigators to fit research and management needs.

Oak woodland-brushland [G9-10]

4. An aspen stand was identified in the SFRMP process in this community for harvesting over the next 7 years. (p. 4)

Floodplain forest and lowland hardwood forest [G. 11-14] (p. 5)

5. [One stand, primarily box elder, elm, and bur oak] was identified in the SFRMP process for harvesting over the next 7 years.
6. On-site field evaluation may allow this area to be managed as a more diverse lowland hardwood forest in the future.

Maple-Basswood Forest

7. No activities are planned during the next 7 years. (p. 5)

White Pine-Hardwood Forest . (p. 6) [G19-22]

8. ...management may include some form of scarification or logging to encourage white pine regeneration
9. Evaluate and monitor these stands over the next seven (7) years to determine whether white pine regeneration is evident.
10. Develop management strategy should no natural regeneration be present.
11. [One stand] was identified during the SFRMP process for selective harvest during the next seven years.

Dry cliffs [G23-24] (p. 7)

12. No activities planned during the next 7 years.

11. High Biodiversity Area Management Plan: Whitewater Sand Savanna

Document Title	Source	Date	URL or Address
ADDENDUM: High Biodiversity Area Management Plan, Whitewater Sand Savanna	Minnesota Department of Natural Resources, Division of Forestry	Feb. 2006	http://files.dnr.state.mn.us/forestry/subsection/blufflands/sandsavannaplan.pdf

Geographic Extent / Scope:

The Whitewater Sand Savanna Area can be divided into three ecological units: terrace, bluff, and floodplain [...] Two boundaries delineate the areas of significance addressed by this plan [...] The Critical Habitat Zone boundary denotes the core area of locations of rare natural features. This area encompasses 5,975 acres (5,613 acres of State Land). The vast majority of the lands in the critical zone are part of the WWMA. [...] The Project Boundary is 12,797 acres (11,015 acres of State Land) and refers to a larger area that would allow for additional habitat and buffering.

Organizations / Agencies involved in plan creation:

Division directors for the DNR Divisions of Wildlife, Forestry, and Ecological Services determined that long-term management plans would be developed for the 13 identified high biodiversity areas. (p. 1)

Info on Planning Process:

The management philosophy for this area is based on a landscape level perspective of ecosystems and the species that use these ecosystems. This plan is intended to be used in conjunction with the Blufflands/ Rochester Plateau Subsection Forest Resource Management Plan (SFRMP) that was completed by the DNR in 2002, and will be revisited every 7-years as part of an adaptive management process. (p. 1)

Purpose of plan:

This plan will guide management decisions and practices on state owned land in the Whitewater Sand Savanna area [...] (p. 1)

ISSUES

1. Escalating development pressure in the surrounding landscape (p. 2)
2. Increasing fragmentation (p. 2)
3. Global change (p. 2)
4. Rare species and community types (p. 2)
5. Biodiversity protection (p. 2)
6. Game species management (p. 2)
7. Recreation (p. 2)
8. Karner blue butterfly (p. 3)
9. Exotic species including Tartarian honeysuckle and buckthorn (p. 3)
10. White-tailed deer have greatly reduced jack pine seedling survival due to browsing. (p. 3)
11. Reed canary grass (p. 8)
12. [Low diversity] following agricultural use (p. 8)

VISIONS

1. ... management of these sites should focus on the site as a whole, employ practices that perpetuate endangered, threatened, or special concern species, and native plant communities while following the mandates of forestry or wildlife administered lands. (p.1)
2. ...to manage and enhance native plant communities and the plant and animal species that reside in this area using processes that mimic the disturbances processes that helped to establish and maintain these communities. (p.2)

3. ...meld the goals of biodiversity protection, game species management, and recreation into an adaptive management process. (p.2)

GOALS

1. ...to maintain the mix of community types providing a variety of habitat for numerous rare species. (p.3)
2. Any logging used in the management of these areas will be designed to mimic natural disturbance process and will be performed in a way that minimizes soil compaction and damage to the understory species. (p.3)
3. Management will be performed using existing road and trail systems and the construction of new roads will be kept to a minimum. (p.3)
4. Areas will continue to be burned with an emphasis on enlarging the burn area to encourage expansion of the oak savanna in the dryer oak brushland and oak forest communities-particularly those areas of Plainfield Sand soils. (p.3)
5. Management will include, selective cutting and girdling of trees, herbicide application to create patchy openings, firewood sales, as well as prescribed fire. (p.3)
6. Management techniques will be designed to mimic natural disturbances such as blow downs, diseases native to the area, and fire. (p.3)
7. ...enhance the jack pine barrens communities in the area while being sensitive to the Karner blue butterfly population. (p. 4) [Jack pine barrens]
8. Current work to expand Karner blue butterfly habitat will continue with creating a patchwork of open savanna adjacent to the occupied areas. (p. 4) [Jack pine barrens]
9. Management treatments may include, commercial firewood sales or other timber sales, girdling and herbicide application, scarification, and prescribed burning (p. 4) [Jack pine barrens]
10. Barrens oak savannas will be managed to encourage regeneration of the savanna community and current work to expand Karner Blue butterfly habitat will continue with creating a patchwork of open savanna adjacent to the occupied areas. [Barrens oak savanna] (p. 4)
11. Management treatments might include, commercial firewood and other timber sales, girdling and herbicide application, scarification, and prescribed burning. [Barrens oak savanna] (p. 4)
12. Areas that are threatened by invasion of non-natives will be managed to reduce the threat of these species. [Barrens oak savanna] (p. 4)
13. maintain the White Pine-Hardwood Forest plant community. [White Pine-Hardwood] (p. 5)
14. These areas do not naturally experience frequent or intense disturbance patterns and should be maintained naturally without disturbance. [White Pine-Hardwood] (p. 5)
15. Any management in this area should be conducted in a manner that is sensitive to the needs for the community as a whole, including the forest interior birds that breed in this area. [White Pine-Hardwood] (p. 5)
16. ...dry oak forests will be managed to encourage regeneration of the oak forest communities through controlled burning and, where necessary to open up canopies, carefully planned logging. (p.5)
17. Areas that are threatened by invasion of non-natives will be managed to reduce the threat of these species. (p.6)

18. Oak woodland-brushlands will be managed to encourage regeneration of the savanna communities through controlled burning and, where necessary to open up canopies, carefully planned logging. [Oak woodland-brushlands] (p. 6)
19. reduce [...] invasive [native] shrubs. [Oak woodland-brushlands] (p. 6)
20. Areas that are threatened by invasion of non-natives will be managed to reduce the threat of these species. [Oak woodland-brushlands] (p. 6)
21. Those areas with a preponderance of maple/basswood and northern hardwood regeneration will be allowed to succeed to maple/basswood forests. [Oak forest] (p. 6)
22. Those stands that have a high component of oak and other shade intolerant regeneration [...] will be managed to augment the oak component. [Oak forest] (p. 6)
23. Management options might include prescribed fire, timber harvest, supplemental planting of oak both pre- and post- harvest, and post-sale treatment efforts. [Oak forest] (p. 6)
24. Prescribed fire in adjacent communities of barrens oak savannas, oak forest-dry subtype, oak woodland-brushlands, or dry prairies may be allowed to carry into the mesic oak type as part of larger landscape burns to take advantage of natural firebreaks. [Oak forest] (p. 6)
25. Areas that are in valleys managed for the karner blue recovery project will be managed according to the goals of this project. [Oak forest] (p. 6)
26. The high quality mesic oak forest communities located at the upper ends of valleys are important forest interior habitat to rare species such as Acadian flycatcher (*Empidonax virescens*), cerulean warbler (*Dendroica cerulea*), and red-shouldered hawk (*Buteo lineatus*); these areas will be allowed to succeed without intensive management. [Oak forest] (p. 6)
27. ...areas will be managed to restore a diverse floodplain forest community type and to encourage the continued existence of the forest interior bird species that currently occupy these areas. [Floodplain forest] (p. 8)
28. Areas that are not threatened by reed canary grass and are regenerating the overstory species such as cottonwood and silver maple will be maintained with minimal management. [Floodplain forest] (p. 8)
29. Areas of floodplain forest that are dominated by reed canary grass will be managed to minimize this risk. [Floodplain forest] (p. 8)
30. Areas that are regenerating box elder as the major understory species will be managed to encourage the regeneration of overstory species such as cottonwood and silver maple and decrease the dominance of box elder. [Floodplain forest] (p. 8)

STRATEGIES

Terrace Unit

Jack Pine Barrens (p. 3-4) [G7-9]

1. Management activities that open the habitat and encourage the reproduction of Jack Pine are ongoing in this area.
2. Continue the current management through the use of prescribed fire on habitat adjacent to wetlands, mesic prairies, bluff prairies, and barren oak savanna with reference to both the Natural Heritage Registry agreement and the recommendations of the Karner Blue Recovery Plan.

3. Continue management to maintain and enhance the oak savanna habitat and Jack Pine Barrens based on current management practices and Karner Blue butterfly recovery plan in the areas identified in this plan.
4. selective cutting, girdling and chemical application to create a patchy habitat. Expand Karner blue habitat work into the jack pine barrens community to eliminate competing oak and release jack pine.
5. Conduct a large scale prescribed burn throughout the entire Natural Heritage Registry site excluding the occupied Karner blue butterfly site within four years.

Barrens oak savanna (p. 5) [G10-12]

6. Continue the current management through the use of prescribed fire and brush removal with reference to both the Natural Heritage Registry agreement and the recommendations of the Karner Blue Recovery Plan.
7. Continue management to maintain and enhance the oak savanna habitat based on current management practices and Karner Blue butterfly recovery plan in the areas identified in this plan.

White Pine-Hardwood Forest (mesic subtype) (p. 5) [G13-15]

8. Manage these areas in a fashion compatible with the long-term objectives stated above.
9. Conduct field inventories in these communities to determine amount of advanced regeneration.
10. Consider and initiate management techniques including prescribed burning to encourage white pine regeneration on these sites.

Bluff Unit

Oak forest (dry subtype) [G16-17] (p. 5-6)

11. [One stand] will be managed according to the Long-term management objective above considering management techniques such as group selection harvest and prescribed burning.

Oak woodland-brushland [G18-20] (p. 6)

12. Continue to manage these areas with the use of fire and brush removal to encourage the regeneration of the savanna communities.

Oak forest (mesic subtype) [G21-26] (p. 6-7)

13. Vegetation management could include: prescribed burning, partial cutting, shelterwood or group selection and/or clearcutting to regenerate oak.

Floodplain Unit

Floodplain Forest (p. 8) [G27-30]

14. Vegetation management could include: prescribed burning, partial cutting, shelterwood or group selection and/or clearcutting to regenerate oak.
15. [Six stands] will be managed to remove the dominant box elder canopy and regenerate the area to a diverse floodplain forest community.

16. Practices might include commercial timber harvest, direct seeding, scarification with bulldozer to remove undesirable competition (i.e., reed canary grass) or tree planting.
17. A portion of [one stand] that is currently in agriculture will be direct seeded to diverse lowland hardwoods.

12. High Biodiversity Area Management Plan: Whitewater South Fork

Document Title	Source	Date	URL or Address
ADDENDUM: High Biodiversity Area Management Plan, Whitewater South Fork	Minnesota Department of Natural Resources, Division of Forestry	July 2006	http://files.dnr.state.mn.us/forestry/subsection/blufflands/sfrmp_Blufflands_RochesterPlateau_Whitewater_Southfork_addendum.pdf

Geographic Extent / Scope:

The Whitewater South Fork Area is one of 13 MCBS sites of outstanding biodiversity on DNR Forestry and Wildlife administered lands in southeast Minnesota and one of four high biodiversity sites located within the WWMA. Two boundaries delineate the areas of significance with this plan. The Critical Habitat Zone boundary denotes the core area of locations of rare natural features. This area encompasses 1,765 acres (1,034 acres of State-owned land). The majority of the lands in the critical zone are part of the WWMA (see appendix 2). [...] The Project Boundary is 4,697 acres (2,649 acres of State Land). (p. 2)

Organizations / Agencies involved in plan creation:

Division directors for the DNR Divisions of Wildlife, Forestry, and Ecological Services determined that long-term management plans would be developed for the 13 identified high biodiversity areas. (p.1)

Info on Planning Process:

The management philosophy for this area is based on a landscape level perspective of ecosystems and the species that use these ecosystems. This plan is intended for use in conjunction with the Blufflands/ Rochester Plateau Subsection Forest Resource Management Plan (SFRMP) that was completed by the DNR in 2002, and will be revisited every seven years as part of an adaptive management process. (p.1)

Purpose of plan:

This plan will guide management decisions and practices on state owned land in the Whitewater South Fork area. [...] Recommendations in this plan are written for DNR-administered lands. Private landowners within the project boundary will be contacted and offered management assistance for their land if they desire. (p.1-2)

ISSUES

1. Escalating development pressure in the surrounding landscape (p.1)
2. Increasing fragmentation (p.1)
3. Global change (p.1)
4. Biodiversity enhancement (p.2)

5. Game management (p.2)
6. Recreation (p.2)
7. Rare species and community types (p. 3)
8. Invasion of nonnative species such as buckthorn and honeysuckle (p. 3)
9. Reed canary grass (p. 4)

VISIONS

1. ...management of these sites should focus on the site as a whole, employ practices that perpetuate endangered, threatened, or special concern species, and native plant communities while following the mandates of forestry or wildlife administered lands. (p.1)
2. ...to maintain and regenerate native plant communities and the biodiversity of the area using processes that mimic the natural disturbances that helped to maintain and establish these communities. (p. 2)
3. ...meld the goals of biodiversity enhancement, game management, and recreation into an adaptive management process. (p. 2)

GOALS

1. Management in these [rare species and community types] will be performed in a manner that mimics natural disturbance processes and is sensitive to the maintenance of the native plant communities and the species found within these communities. (p. 3)
2. ...maintain the mix of community types providing a variety of habitat for numerous rare species. (p. 3)
3. Any logging used in the management of these areas will be designed to mimic natural disturbance process and will be performed in a way that minimizes soil compaction and damage to the understory species. (p. 3)
4. In general, much of the harvest related management activities will take place in the northern portion of this site. [...] The southern portion of the site provides habitat for most of the rare species found in this area and many of the more sensitive native plant communities and will be managed accordingly. (p. 3)
5. Management will be performed using existing road and trail systems and the construction of new roads will be kept to a minimum. (p. 3)
6. Some of these areas [of oak forest] will lend themselves well to oak regeneration through various sized timber harvests while others will convert to northern hardwood species like maple, basswood, elm, and hackberry. [oak forest] (p. 3)
7. Opportunities to incorporate shelterwood or group selection harvests should be explored when possible. [oak forest] (p. 3)
8. Non-game Wildlife and MCBS data will be utilized to identify critical habitat for management in small, medium, and large patches, i.e., red-shouldered hawks. [oak forest] (p. 3)
9. Management decisions on these areas will be designed to encourage the oak community type and may include fire and timber harvest. [oak forest] (p. 3)
10. The management of these areas will be designed to encourage the maintenance of the oak woodland-brushland community and will include fire and timber harvest. [Oak woodland-brushland] (p. 4)
11. Areas that are threatened by invasion of nonnative species will be managed to reduce the threat of these species. [Oak woodland-brushland] (p. 4)

12. Management techniques will be designed to mimic natural disturbances such as blow downs, disease, and fire. [Oak woodland-brushland] (p. 4)
13. These areas will be managed to maintain the lowland hardwood forest community type and to encourage the continued existence of the forest interior bird species that currently occupy these areas. [Lowland hardwood forest] (p. 4)
14. Areas that are not threatened by reed canary grass and are regenerating the overstory hardwood species will be maintained with minimal management. [Lowland hardwood forest] (p. 4)
15. Areas of lowland hardwood forest that are dominated by reed canary grass will be managed to minimize this risk. [Lowland hardwood forest] (p. 4)
16. Areas that are exhibiting canopy regeneration will be managed to encourage the regeneration of overstory hardwood species and restore the lowland hardwood forest community. [Lowland hardwood forest] (p. 4)
17. ...maintain the maple basswood forest community and the full canopy cover that is typical of this native plant community. [maple-basswood] (p. 5)
18. Harvest activity should limit canopy gap creation wherever possible and account for fill in by remaining crowns. [maple-basswood] (p. 5)
19. Where nonnative species invasion is prevalent management action should be taken. [maple-basswood] (p. 5)
20. ...maintain the white pine-hardwood forest plant community. [white pine-hardwood] (p. 6)
21. Those areas that exhibit white pine regeneration should be allowed to continue natural regeneration. [white pine-hardwood] (p. 6)
22. Those areas that exhibit a lack of white pine regeneration should be managed to encourage white pine regeneration. This management may include some form of scarification or logging to encourage white pine regeneration. [white pine-hardwood] (p. 6)
23. ...maintain the northern hardwood-conifer forest plant community. [Northern hardwood-conifer] (p. 6)
24. Where nonnative species invasion is prevalent management action should be taken. [Northern hardwood-conifer] (p. 6)
25. Maintain and protect the sensitive habitat of these areas. [Talus slope/moist cliff] (p. 7)
26. Avoid management activities that would threaten these areas. [Talus slope/moist cliff] (p. 7)
27. Include buffers between adjacent sites when management is implemented. [Talus slope/moist cliff] (p. 7)
28. Maintain and protect these habitats. [Dry cliffs] (p. 7)
29. Avoid management activities that would threaten these areas. [Dry cliffs] (p. 7)
30. Maintain and protect the sensitive habitat of these areas. [moist cliff] (p. 8)
31. Avoid management activities that would threaten these areas. [moist cliff] (p. 8)
32. Include buffers between adjacent sites when management is implemented. [moist cliff] (p. 8)
33. These areas will be managed to maintain the black ash swamp community and the canopy cover and emergent vegetation that is typical of this native plant community. [Black ash swamps] (p. 8)
34. Where nonnative species invasion is prevalent management action should be taken. [Black ash swamps] (p. 8)

STRATEGIES

Oak forest (southeast section) mesic subtype (p. 3-4) [G6-9]

1. Five CSA forest stands met stand selection criteria for harvest and fall in the Mesic Oak Forest plant community designated by the MCBS.
2. Timber management should consider small, medium, and large-scale harvests in these types to provide habitat for game and non-game species, including forest interior birds.
3. clear cuts for oak regeneration is the normal practice, efforts to apply group selection and shelterwood cuts should be applied where appropriate.
4. Management in the mesic oak forest areas will be designed to minimize canopy loss and techniques such as group selection will be examined for their effectiveness.

Oak woodland-brushland (p. 4) [G10-12]

5. There are no stands meeting selection criteria over the next seven years.

Lowland hardwood forest (p. 5) [G13-16]

6. Two stands were identified through the SFRMP process in this community for limited harvesting over the next seven years
7. Stands that are not threatened by box elder conversion or invasion of exotics species will not be managed with harvest.

Maple-basswood forest (p. 5) [G17-19]

8. Harvest planned in this community type will follow the additional management guidance provided by the division directors of DNR Forestry, Wildlife, and Ecological Services. (p. 5)
9. No management actions will be implemented [on old growth stands]. (p. 5)

White pine-hardwood forest (p. 6) [G20-22]

10. The white pine-hardwood forest community contains one CSA stand that met harvest criteria during the next seven years
11. ...it is recommended that a thorough ground survey be conducted by staff from the Divisions of Ecological Services, Forestry and Wildlife prior to any timber harvest to detail plans for ensuring retention of this unique community.
12. Opportunities to encourage white pine regeneration will be explored while maintaining a healthy oak component in this type.
13. ...should a timber harvest be proposed, only a portion of the community will be harvested to better monitor impacts on ground cover and any subsequent white pine regeneration within this type.
14. No harvesting activity will take place in the old growth areas.

Northern hardwood-conifer forest (p. 6) [G23-24]

15. No activities are planned during the next seven years.

Talus slope (algific subtype) and moist cliff (southeast section) moderate subtype (p. 7) [G25-27]

16. No activities planned during the next seven years.

Dry cliffs (southeast section) [28-29]

17. No activities planned during the next seven years.

Moist cliff (southeast section) (p. 7) [G30-32]

18. No activities planned during the next seven years.

Black ash swamp (p. 8) [G33-34]

19. No activities planned during the next seven years.

13. High Biodiversity Area Management Plan: Whitewater Upper Beaver Creek

Document Title	Source	Date	URL or Address
ADDENDUM: High Biodiversity Area Management Plan, Whitewater Upper Beaver Creek	Minnesota Department of Natural Resources, Division of Forestry	Sept. 2005	http://files.dnr.state.mn.us/forestry/subsection/blufflands/sfrmp/Blufflands_RochesterPlateau_WhitewaterUpperBeaverCreek_addendum.pdf

Geographic Extent / Scope:

The Whitewater Upper Beaver Creek area is one of four (4) high biodiversity sites located within Whitewater Wildlife Management Area (WWMA). Two boundaries delineate the areas of significance with this plan. The Critical Habitat Zone boundary denotes the core area of locations of rare natural features. This area encompasses 1,035 acres (500 acres of State Land). A large portion of the land in the critical zone is part of the WWMA (Appendix 2). [...] The Project Boundary is 2,000 acres (830 acres of State Land).

Organizations / Agencies involved in plan creation:

Division directors for the DNR Divisions of Wildlife, Forestry, and Ecological Services determined that long-term management plans would be developed for the 13 identified high biodiversity areas. (p.1)

Info on Planning Process:

The management philosophy for this area is based on a landscape level perspective of ecosystems and the species that use these ecosystems. This plan is intended to be used in conjunction with the Blufflands/ Rochester Plateau Subsection Forest Resource Management Plan (SFRMP) that was completed by the DNR in 2002, and will be revisited every 7-years as part of an adaptive management process.

Purpose of plan:

This plan will guide management decisions and practices on the Whitewater Upper Beaver Creek area. [...] Recommendations in this plan are written for State-owned land. Private landowners within the project boundary will be contacted and offered management assistance for their land if so desired. (p.1)

ISSUES

1. Escalating development pressure in the surrounding landscape (p.1)

2. Increasing fragmentation (p.1)
3. Global change (p.1)
4. Biodiversity enhancement (p.2)
5. Game management for species such as wild turkeys, white-tailed deer, and ruffed grouse (p.2)
6. Recreation (p.2)
7. Rare species and community types (p. 3)
8. Nonnative species such as buckthorn and honeysuckle (p3)
9. Areas have been disturbed by past grazing (p. 5)
10. Prickly ash and other native shrubs that follow grazing (p.5)
11. Reed canary grass

VISIONS

1. ...management of these sites should focus on the site as a whole, employ practices that perpetuate endangered, threatened, or special concern species, and native plant communities while following the mandates of forestry or wildlife administered lands. (p.1)
2. ...to maintain and regenerate native plant communities and the biodiversity of the area using processes that mimic the natural disturbances that helped to maintain and establish these communities. (p. 2)
3. ...meld the goals of biodiversity enhancement, game management for species such as wild turkeys, white-tailed deer, and ruffed grouse, and recreation into an adaptive management process.
4. ...maintain the mix of community types providing a variety of habitat for numerous rare species. (p. 3)

GOALS

1. Any logging used in the management of these areas will be designed to mimic natural disturbance process and will be performed in a way that minimizes soil compaction and damage to the understory species. (p.3)
2. Management will be performed using existing road and trail systems and the construction of new roads will be kept to a minimum. (p.3)
3. Those areas with a preponderance of maple/basswood and northern hardwood regeneration will be allowed to succeed to maple/basswood forests. [oak forest mesic] (p. 3)
4. Management techniques will be designed to mimic natural disturbances such as blow downs, disease, and fire. [oak forest mesic] (p. 3)
5. Management in the mesic oak forest areas will be designed to minimize canopy loss and techniques such as group selection will be examined for their effectiveness. [oak forest mesic] (p. 3)
6. Those stands that have a high component of oak and other shade intolerant regeneration [...] will be managed to augment the oak component for the benefit of numerous game and non-game species. [oak forest mesic] (p. 3)
7. Management options [for nonnative invasive plants] might include prescribed fire, small, medium, and large-scale timber harvest (including clear-cut, shelterwood, or group selection), supplemental planting of oak both pre- and post- harvest, and post-sale silvicultural treatment efforts. [oak forest mesic] (p. 3)
8. Areas that are succeeding to a more mixed hardwood forest will be allowed to succeed. [oak forest southeast] (p. 5)

9. Areas that have oak regeneration will be managed to promote the continuation of the oak forest including fire, and/or timber harvest. [oak forest southeast] (p. 5)
10. Areas that are threatened by invasion of non-natives will be managed to reduce the threat of these species. [oak forest southeast] (p. 5)
11. Management techniques will be designed to mimic natural disturbances such as blow downs, disease, and fire. [oak forest southeast] (p. 5)
12. Management in the mesic oak forest areas will be designed to minimize canopy loss and techniques such as group selection will be examined for their effectiveness. [oak forest southeast] (p. 5)
13. Oak woodland-brushlands will be managed to encourage the maintenance of the oak woodland-brushland community or encourage regeneration of the savanna communities through controlled burning and, where feasible to open up canopies, carefully planned logging. [oak woodland-brushland] (p. 5)
14. A management goal is to reduce [native] invasive shrubs.[oak woodland-brushland] (p. 5)
15. Areas that are threatened by invasion of non-natives will be managed to reduce the threat of these species. oak woodland-brushland] (p. 5)
16. These areas will be maintained as open cliff communities. [dry cliffs] (p. 5)
17. Management in these areas will be designed to maintain the community type. [mixed hardwood swamp] (p. 6)
18. Brush cutting to control woody competition may be necessary in the wet meadow. [mixed hardwood swamp] (p. 6)
19. These areas should be monitored for nonnative species invasion and seedling regeneration. [mixed hardwood swamp] (p. 6)
20. These areas will be managed to maintain the lowland hardwood forest community type and to encourage the continued existence of the forest interior bird species that currently occupy these areas. [lowland hardwood] (p. 6)
21. Areas that are not threatened by reed canary grass and are regenerating the overstory hardwood species will be maintained with minimal management. [lowland hardwood] (p. 6)
22. Areas of lowland hardwood forest that are dominated by reed canary grass will be managed to minimize this risk. [lowland hardwood] (p. 6)
23. Areas that are exhibiting canopy regeneration will be managed to encourage the regeneration of overstory hardwood species and restore the lowland hardwood forest community. [lowland hardwood] (p. 6)
24. ...maintain a riparian corridor connecting these two sections of high biological diversity while allowing timber harvest entry to restore and manage for a diverse lowland hardwood forest. [lowland hardwood] (p. 6)
25. These areas will be managed to maintain the maple basswood forest community and the full canopy cover that is typical of this native plant community. [maple basswood] (p. 7)
26. Where nonnative species invasion is prevalent management action should be taken. [maple basswood] (p. 7)
27. The management goal for this area is to maintain the White Pine-Hardwood Forest plant community. [white pine-hardwood] (p. 7)
28. Those areas that exhibit white pine regeneration should be allowed to continue natural regeneration. [white pine-hardwood] (p. 7)

29. Those areas that exhibit a lack of white pine regeneration should be managed to encourage white pine regeneration. This management may include some form of scarification or logging to encourage white pine regeneration. [white pine-hardwood] (p.7)
30. Maintain and protect the sensitive habitat of these areas. [Algific talus slope] (p. 8)
31. Avoid management activities that would threaten these areas. [Algific talus slope] (p. 8)
32. Include buffers between adjacent sites when management is implemented. [Algific talus slope] (p. 8)
33. Management concerns such as undue edge effects on interior birds will be considered when examining management technique that allow for oak regeneration. [summary] (p. 8)
34. ...some of the stands identified by the CSA database will be placed in a reserved and ERF status during the current and upcoming stand review process of the DNR SFRMP. [summary] (p. 8)

STRATEGIES

Oak forest Mesic Subtype (p. 5) [G3-7]

1. Two (2) stands [...] were identified as meeting the criteria for harvest over the next 7 year period...
2. [one aspen] stand could be included during the harvest of stand 10 to regenerate this type and improve habitat for ruffed grouse and woodcock.

Oak forest southeast (p. 5) [G8-12]

3. There is no management activities planned for the next seven years for this native plant community.

Oak Woodland-Brushland (p. 6) [G13-15]

4. No activities are planned during the next 7 years.

Dry Cliffs [G16] (p. 6)

5. No activities are planned during the next 7 years.

Mixed Hardwood Swamp [G17-19] (p. 6)

6. No activities are planned during the next 7 years.

Lowland Hardwood Forest (p. 6) [G20-24]

7. No activities are planned during the next 7 years.

Maple Basswood Forest (p. 7) [G25-26]

8. No activities are planned for the next 7 years.

White Pine-Hardwood Forest

9. No activities are planned for the next 7 years.

Algific Talus slope

10. No activities are planned.



References

Class, Leah and Chad Skally 2002. Forest resources management in Southeast Minnesota: A landscape perspective. Minnesota Forest Resources Council, Report LP-0502. 65pp.

Michael Lynch and Cindy Zerger. 2013. Forest Policy Inventory Report 2nd Generation Northeast Landscape Plan. Minnesota Forest Resources Council, Report LP-0502. 76 pp.

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